The Journal
OF THE
Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

VOL. XIX. NOVEMBER, 1915. No. 11.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 28th October, 1915, at 11.40 a.m., having been postponed from the usual date, the third Thursday of the month, on account of that day being Trafalgar Day. There were present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G. and Hon. P. C. Cork, C.M.G., (Vice-Presidents), Hons. L. J. Bertram, C.M.G., Geo. McGrath, D. Campbell and S. S. Stedman; Messrs. R. Craig, A. W. Douet, A. W. Farquharson, A. C. L. Martin, E. W. Muirhead, H. Q. Levy, Conrad Watson and the Secretary, Jno. Barclay.

Apologies for Absence.—Apologies for absence were submitted from the Hon. J. R. Williams, who was still indisposed; Mr. Adam Roxburgh and Rev. W. T. Graham.

The Minutes of the previous Meeting were read and confirmed.

Statement of Accounts.—Statement of Accounts was submitted.

The following matters arising out of the previous Minutes were considered:—

Motions by Rev. W. T. Graham:—

(*a*) *Questions.*—"That a place be provided on the Agenda for Questions at an early stage of the Meetings of the Board."

After discussion it was agreed that this should be done, provided that any question which might involve reference, should be given notice of.

(*b*) *Insurance of Crops.*—"That at the next Meeting of the Board I will ask that a Special Committee of this Board be appointed to provide a proper scheme for the insurance of crops against loss by disaster."

Sir Jno. Pringle said that Mr. Graham who was unavoidably absent, had written him asking him to move the resolution for him. He therefore formally moved the resolution on behalf of Mr. Graham.

Mr. Craig said he would second it for the purpose of discussion.

Sir Jno. Pringle Mr. Cork and Mr. Stedman, spoke on the subject.

The President said that he had seen the correspondence that had passed on the question of hurricane insurance some years ago, as also the Report of the Committee appointed by the Governor to consider the same subject. At that time the Board was not in favour of that scheme for hurricane insurance, and Sir Sydney Olivier in 1909 said that he did not see how the proposals that were put before

the Committee could be made workable. It was from that report, however, that the scheme for Agricultural Loan Banks arose. Those Banks had not been entirely satisfactory, but there were reasons for this—hurricanes and droughts—and most of the Banks were in arrears. What Mr. Stedman had brought forward went outside of hurricane insurance altogether. If they started a scheme for hurricane insurance the Government would require to take the matter in hand and would probably be required to provide money as an Insurance Fund. He thought a Committee should be appointed to consider the whole matter, and he would ask that Committee to consider what effect any scheme proposed might have on the operations of the Agricultural Loan Banks, and whether it would be worth while to launch a scheme on parallel lines to that of the Agricultural Loan Banks.

Sir Jno. Pringle said that the Archbishop who was much interested in the subject had promised that he would give whatever advice he could although he might not be able to be an active member of the Committee. He (Sir John) would like also to mention the name of Mr. A. H. Rowley.

After discussion the following Committee was finally appointed:—

Hon. P. C. Cork (Chairman), Sir Jno. Pringle, His Grace the Archbishop, Hon. S. S. Stedman, Messrs. R. Craig, A. W. Farquharson, A. H. Rowley and the Rev. W. T. Graham.

Mr. Craig said he would only serve on the Committee if the question of hurricane insurance alone was to be considered and no other complicated matters brought in as suggested by Mr. Stedman.

It was agreed that the Committee should consider the question of Insurance of Crops alone.

(c) *Pimento for Experiment.*—The Secretary said that as requested by the Secretary of the West India Committee, London, he had forwarded a bag of Pimento to the War Office for experiment. Mr. Martin had provided the Pimento.

(d) *Swine Fever in S. St. Elizabeth.*—The Secretary submitted copy of the Report by Dr. Rushie Grey, Government Veterinary Consultant, on his investigations in cases of supposed Swine Fever in St. Elizabeth. He would publish this Report in the JOURNAL as it would be useful. No definite conclusions had been come to as there had not been enough cases left to make the investigation complete. Whenever any epidemic among pigs occurred again, the Government Veterinary Consultant would investigate.

(e) *Authorized Persons of defunct Branches.*—The Secretary read letter from the Attorney General stating that the appointments of "Authorized Persons" held good, after the local Agricultural Society, which nominated the persons referred to, had ceased to exist, but the Inspector General of course could at any time revoke the appointments.

The following letters from the C.S.O. were submitted:—

(a) *District Constables as Produce Buyers.*—The Secretary said that there had been complaint by representatives of Branch Societies at the Half-Yearly General Meeting held in July last, that District Constables held Produce Licenses and sometimes used their authority as Constables to the detriment of other buyers. He had referred the matter to the Government, and the following was the reply:—

No. 11825-13548. 21st September, 1915.

"With reference to your letter No. 1372, dated the 29th June last in which you stated that in the opinion of the general meeting of your society, it was not desirable that district constables should act as produce buyers, I am directed by the Governor

to inform you, for the information of your society that the Inspector General of Police reports, that of the eleven district constables holding licenses as Produce Buyers, and Agents for Produce Buyers, five have resigned from the District Constables Force, and the others have retired from the produce business."

(Sgd.) G. M. Wortley,
Actg. Asst. Colonial Secretary.

He was instructed to reply that the recommendation should also be prospective, that no man holding a Produce License should be a District Constable.

(*b*) *Special Train for General Meeting.*—The Secretary said that the following letter referred to a proposal from Mr. Cradwick, that a special train might be run from Port Antonio on the day of the General Meeting of the Society, as at the last Meeting a large number of the delegates had come from St. Mary and Portland, and owing to the train being late, missed part of the Meeting. He read the C.S.O. letter as follows:—

No. 12646-14495. 11th October, 1915.

"With reference to the correspondence ending with your letter, dated No. 95, dated 3rd ultimo, I am directed by the Governor to state for the information of the Jamaica Agricultural Society that from enquiry it is found that the estimated cost of a special train from Port Antonio to Kingston on the day fixed for the half yearly general meetings of the society would be considerable and would not be covered by the fares and that at the present juncture the proposal cannot be entertained as the strictest economy is necessary.

(Sgd.) Robt. Johnstone,
Actg. Colonial Secretary.

(*c*) *Double-dialled Spring Balances.*—

No. 12675-13743. 12th October, 1915.

"With reference to the request which was made by a delegate at the last half yearly meeting of the Jamaica Agricultural Society, that legislation should be provided for the use of double dialled spring balances by shopkeepers in the Island, I am directed by the Governor to inform you that steps are being taken to have a Bill prepared for consideration with a view to giving effect to the proposal.

"The Bill will not however, be dealt with until the first non-war session of the Legislative Council."

(Sgd.) Robt. Johnstone,
Actg. Colonial Secretary

The Secretary explained that at the last Half-Yearly General Meeting held in July it has been reported that it was a common practice in shops to have the scales fixed up so that the weights could not be seen by the customer, and it was suggested that it should be made compulsory that double-faced scales be used.

(*d*) *Government Veterinary Consultant.*—

No. 12290-14197. 1st October, 1915.

"I am directed to inform you that the Governor being satisfied that Anthrax exists in the parish of St. Elizabeth, has, under Section 3 of Law 1 of 1909 as amended by Law 21 of 1910, appointed the Director of Agriculture and Dr. G. O. Rushie Grey, Veterinary Consultant to be Commissioners for that Parish for the purposes of the Law.

2. The necessary Order will be published in the Jamaica *Gazette* in due course."

(Sgd.) Robt. Johnstone,
Actg. Colonial Secretary.

(*e*) *Free Rail on Bundles of Sweet Potato Slips.*—

No. 11390-13169. 11th September, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 104, dated the 8th instant, and to inform you in reply that His Excellency approves of bundles of Sweet Potato Slips being conveyed by the Railway free of freight from the Prison Farm, Spanish Town, to the several stations in St. Mary for distribution in the storm damaged districts of that Parish."

(Sgd.) Robt. Johnstone,
Actg. Colonial Secretary.

The Secretary stated that after any storm which destroyed bananas in St. Mary there was always a rush to plant other foodstuffs and Sweet Potatoes were largely planted. Supplies of plants were wanted and he got these from the Prison Farm.

(*f*) *Extension of Time for Loans.*—

No. 12487-14292. 7th October, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 124, dated the 29th ult., submitting a copy of a resolution passed by the Central St. Mary Branch Agricultural Society asking that further loans may be made to members of the Society to enable them to restore their cultivations which were damaged by the recent hurricane.

2. I am in reply to ask that you will be so good as to inform this Branch Society of the terms of the resolution passed by the Legislative Council on the 23rd ultimo (a copy of which is forwarded herewith) approving of further advances, not exceeding two thousand five hundred pounds in total amount, being made on certain conditions to Agricultural Loan Societies under Law 6 of 1912, the Agricultural Loan Societies Law, 1912, and that you will intimate to the Society that the Government is not authorized to go beyond the terms of that resolution."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

The Secretary said that resolutions had come from several Branch Societies in St. Mary asking that time be given for payment of the loans got from local Loan Banks. He had forwarded these to the Government.

EXTRACT OF RESOLUTION FROM MINUTES OF THE LEGISLATIVE COUNCIL OF THE 23RD DAY OF SEPTEMBER, 1915.

The Acting Colonial Secretary moved:—

This Council approves of further advances, not exceeding £2,500 in total amount, being made to Agricultural Loan Societies, under the provisions of the Agricultural Loan Societies Law, 1912, Law 6 of 1912, to meet the applications received for further assistance owing to the hurricane of 12th–13th August, 1915, and considered and approved of the Agricultural Loan Societies Board, the loans out of £2,500 to members of the Societies to be made on the following conditions, viz.:—That they should be made only to borowers under Law 36 of 1912 who had paid by 31st July, 1915, at least 10 of the 15 monthly instalments then due on acount of their loans and should be not more than 50 per cent of their total repayments.

Seconded by Mr. Simmonds and agreed to.

I certify the above to be a true extract.

(Sgd.) PHILIP STERN,
Clerk Legislative Council.

The Board decided that all Branch Societies should be notified that all questions from Branches on Loan Bank matters should be communicated direct to the Colonial Secretary's Office and not through the Secretary.

War Gifts and Contingent.—The Secretary reported that he was still making regular shipments every fortnight; as Oranges and Grapefruit fit to ship were now plentiful he could send far larger consignments, but the Shipping Company could only give space for between 100 and 200 boxes.

The Secretary read letter of acknowledgment from the C.S.O. of Gifts forwarded to the Crown Agents. Also the following letter from the C.S.O.:—

No. 11928-S.S. Circular, 21.8.15. 23rd September, 1915.

"I am directed by the Governor to inform you that the Secretary of State for the Colonies has intimated to His Excellency that it is the intention of His Majesty's Government to publish at the conclusion of the War a Blue Book containing a complete list of all the contributions from the Oversea Dominions, both in men, money, and kind, including contributions for relief in Belgium or for the benefit of the other Allied Powers, and has requested that particulars in regard to gifts from Jam[illegible] you may be prepared and kept up to date and ready for transmission to him whe[illegible] quired for the purposes of the Blue Book.

2. In order that a complete list of contributions may be compiled, His Excellency would be obliged if you would be so good as to furnish particulars of any contributions that may have already been made or that may be made in the future through your Society."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

The Secretary submitted letter from Mrs. Bourne as follows:—

Womens' (Provisional) Contingent Committee,
King's House, October 25th, 1915.

"Will you kindly submit the enclosed letter to the next Monthly Meeting of your Society's Committee of Management. As the Society meets only twice a year, I venture to hope that the Committee may feel able to nominate a lady now, without waiting for the Annual Meeting. The matter is not likely to give rise to any difference of opinion."

(Sgd.) K. H. BOURNE, Hon. Sec.

Comforts for the Contingent.—

There seems to be a general feeling that the time has come for the women of Jamaica to be enabled to shew in a practical way their interest in the Jamaican Contingent. Accordingly we have been constituted a little committee, with the object of getting together a larger, permanent ladies' committee which would aim at supplying the Contingent with comforts and extra garments as need may arise. We propose to ask each of the following to nominate a representative on this ladies committee: Every Parochial Board, the Kingston City Council, the Agricultural Society, the Ministers' Fraternal Association, and possibly other bodies. And a few members will be co-opted on account of their personal qualifications. This committee will, it is hoped, co-operate with those ladies and committees who may wish to help the Contingent. While carefully avoiding interference with the admirable work already being done for Belgians, hospitals, etc.

The Appeal is now made.—

But it will take some time to get this committee started and as it is hoped that the Contingent will soon be leaving, we venture now to make the following appeal If any one or committees have made woollen cardigans will they forward them to us? And will others send us money to buy the rest? We propose to ask the West Indian Contingent Committee in England to purchase cardigans for us, to be given on arrival to those members of the Contingent for whom we have been unable to provide on starting. Shirts and socks as well as outer clothing are, as we know, provided by the military authorities.

Any knitters willing to make cardigans for later drafts are asked to send us money for needles and wool, and they will he supplied by degrees as we obtain materials. And we shall welcome donations, small as well as large, to our general fund. His Excellency the Governor has kindly given permission for all correspondence to be addressed to us at King's House, and we shall be greatly obliged if all who may write to us will kindly bear this in mind.

We are, etc.,
MARY H. BLACKDEN, Chairman.
DOROTHY TREFUSIS, Hon. Treas.
KATHARINE H. BOURNE, Hon. Sec.

St. Andrew,
October 22, 1915.

It was agreed to ask Mrs. A. W. Douet to be the representative of the Society on this Committee.

Sugar and Hides.—Letter from Hon. H. Cork, was submitted as follows:—

Parkmount, Port Antonio,
4th October, 1915.

"Gentlemen—I beg to bring under the notice of your Board the fact that although leather has increased in price 100 per cent., the penkeepers and local butchers are only getting 38/ to 42/ per hundred pounds for green hides. I think your Society should circulate a leaflet showing a method whereby green hides could be partially cured and could be kept for shipment.

Settlers' Sugar.—"A lot of the settlers' sugar is not properly tempered. The branch societies should be encouraged to keep a central supply of good temper lime for [illegible] should be retailed amongst the members. A growing evil in this article is the [illegible] of large stones in some tins and in others quite two or three inches of clay is placed in the bottom of the tins before the sugar is put in. I think this should be made an indictable offence.

(Sgd.) HENRY CORK.

The Secretary said that there was some matter in the current number of the JOURNAL as regards the matter of Wet Sugar.

The letter was referred to the Staple and Minor Products Committee.

Catapults.—The Secretary said that he had received complaints from Branch Societies about the use of catapults in their districts. He had written the Inspector General on the subject, and the following was his reply:—

No. 785-6138/15. 16th October, 1915.

"I have to acknowledge the receipt of your letter No. 139, dated 4th instant, and to inform you that the Police were instructed some time ago to use every effort to put a stop to the practice of boys using Catapults to kill birds, and I have again directed their attention to the matter."

(Sgd.) A. E. KERSHAW, Lt.-Col.,
Inspector General of Police.

Letter from Mr. Spooner, Antigua.—The Secretary submitted letter from Mr. Spooner, Antigua, forwarding copy of the Annual Report of the Antigua Onion Growers Association for 1914-15. This appeared to be a very successful Association and the Report would be useful to the Special Committee on Co-Operation, to whom he asked that it might be referred.—Agreed to.

Cassareep.—Samples of Cassareep and Cassareep Sauce from Mrs. Fray, Spring Plain, Milk River, were submitted. Mrs. Fray wrote that the sample of Cassareep procured from Demerara had been useful to her.

The Secretary said he would refer to this matter in the JOURNAL.

Application for Affiliation.—Applications for affiliation from (a) Mt. Moreland (St. Catherine), (b) Mt. Hermon (Portland), were submitted together with recommendation from the Instructors Committee for their affiliation. Mt. Moreland was a new district which had not yet had the benefit of the services of the Agricultural Instructor as there had been no Branch Society within a large radius. Mt. Hermon was a new Branch but was taking the place of an old Branch a few miles away which had become defunct. Mt. Hermon was a better centre.

It was agreed to affiliate both local Societies.

Instructors.—The Instructors Reports and Itineraries for September were submitted and referred as usual to the Instructors Committee.

New Members.—The following new Members were elected:—

Rev. C. R. S. Pike	Black River.
Sebastian Spear,	Le Refineria, Kinatitlan, Mexico.
Senor J. A. Williams,	El Callao, Venezuela, S.A.
Capt. S. D. List,	United Fruit Co., Port Antonio.
G. Phillpotts Brown,	Montego Bay.
A. H. Rowley,	Kingston.

The Meeting adjourned until Thursday, 18th November, 1915, at 11.40 a.m.

THE LIME GROWING INDUSTRY.

Jamaica has exported an average value of only £3,900 of Lime Juice for the 4 years proceeding 1914 (1910-1913.) The quantity has not been increasing. The Island of Dominica exported in the financial year 1913-1914 value £142,662, as much as Jamaica exports in coffee, and somewhat more than we export of cocoa and coconuts. Little Montserrat exported value £5,977. Dominica is what was here would call a wet place; it has of course districts drier than others but on the whole its rainfall is more regularly distributed than ours. It is a much smaller place, of course. The point that we are drawing attention to, because it has always seemed so curiously different from what prevails here, is that limes there are grown in very seasonable districts, that is, with good, even to very heavy rainfalls, while here lime growing is nearly all confined to some of the driest districts along the sea board. There limes are grown in regular plantations, cultivated and sometimes highly cultivated; here we cannot recollect a cultivated plantation of limes being in existence; the late Dr. Neish started one but it was not kept up. The lime trees here are invariably grown, like most of our orange trees (although we have cultivated groves of oranges and grapefruits too)—through grass pastures where they take pot luck. But they are decidedly hardy trees—must be, because they have not been planted but grew up of themselves; grew among grass, often tall guinea grass; were nibbled at by stock; are in districts subject to heavy sea breezes and long and severe droughts. Yet the trees bear, often very well, and are of substantial value. Limes here are never grown commercially where the orange thrives best, inland and on the hills; yet they do grow well there. Altogether the difference in practice between Dominica and here is very curious.

Whenever a War breaks out the price of lime juice rises, that is not to say that there is not a fair demand and price without war, but there is always an increased demand during a war. Temperance legislation in the United Kingdom, if it would hit our rum trade hard, ought if well directed, benefit the Lime trade, and the Ginger trade. and enhance the prospects of these industries. We say, well directed, because care should be taken that temperance drinks are *bona fide* healthy drinks—not concoctions of chemicals "made in Germany." At the present time for instance, practically no Ginger Ale in the United Kingdom has any ginger in it: essence of Capsicum (pepper) is used. Lemonades have no lemons or lime juice in them; kola has no kola in it, and so on. A Pure Food Law which would secure that all labels should describe the contents of a bottle (or other receptacle) accurately, would do.

The following notes are adapted from a special article on the subject of "The Lime and the Lemon as sources of citric acid and Essential Oils," published in the Bulletin of the Imperial Institute, London, and which is full of useful information:—

During recent years, in tropical agriculture, lime cultivation has been one of the minor booms. Prices have ruled extraordinarily high for the various products of this citrus plant, and at the present time large areas of land are being placed under cultivation not only in the West Indies but also in other parts of the tropics.

Economic Status of the Industry.—In magnitude, in volume of trade, the lime-growing industry at present is very small in comparison with industries like rubber or sugar production. Even the

world's trade in citrus products is insignificant in comparison with these. But in two respects, at least, lime cultivation has something in common with those of rubber and sugar. It produces commodities of Imperial origin, important for human consumption and essential for manufacturers in Great Britain. Further resemblance lies in the fact that all these are subject to direct competition. Colonial rubber has to compete with Brazilian; colonial sugar has a rival in beet sugar; colonial lime juice, oils, and fruits have to compete with the products of the Sicilian lemon.

It will be well, however, at the outset to dispel any misapprehensions on this latter point by saying that for the present there are no indications that the supply of lime products will exceed the demand. As a matter of fact lime products, generally speaking, serve industrial purposes different from those of the lemon, but the fact remains that Sicily to a large extent regulates the market price for citric acid, which is the essential constituent of lime juice and of calcium citrate. Sicily, also, because of her large production, influences the prices for essential oils of the citrus group.

It occurred to the writer, in view of the increasing area under limes and the attention which lime growers give to Sicilian affairs, that it would be interesting to contrast the lemon and the lime as sources of citrus products, to compare their respective yields, and their positions in the world's markets. At the same time it was thought desirable to give in outline the methods practised in cultivating limes in the West Indies for the benefit of intending capitalists, and to indicate how the market opinion of lime products compares with that of lemon products. The lemon is not, like the lime, dealt with from the agricultural standpoint, for the reason that the area under lemons—except perhaps in the United States of America—cannot extend, for the plant requires very special conditions of soil and climate, and the industry in Sicily is fully established. Moreover the lime crop appears to be better suited to tropical conditions than the lemon. As regards exports, then, the future development of the citrus industry in prepared products depends almost entirely upon the extension of lime cultivation, which is especially well adapted to the West Indies and Central America.

Extent of Production of Citrus Products.

The commodities dealt with principally in these notes are raw and concentrated lime juice, citrate of lime, and the essential oils. Some idea of the relative importance of lemon and lime products (excluding in the case of lemons the fresh fruit trade) can be obtained from the following figures showing the exports of lime products from the British West Indian Colonies during 1913-14:

	£
Dominica	142,662
Montserrat	5,977
Jamaica (average last four years)	4,179
St. Lucia	3,108
British Guiana	1,530
Total	£157,456

These figures include the fresh limes exported chiefly to New York, worth about £40,000. It may be added that lime products

worth some thousands of pounds are also exported from Porto Rico, Mexico, add other foreign countries of Central America.

The value of citrus products prepared from the lemon exported from Sicily in 1908, which may be taken as an average year, amounted to about £840,650, as follows:

Citrate of lime	..	..	2,678,489
Citrus essential oils	.	..	1,380,455
Raw juice ..	..	..	*121,098*
Concentrated jnice	..	..	23,208
Total	..	..	$4,203,650

As a general rule, the value of the fresh lemons exported equals the combined value of the so-called by-products, excluding peel. This shows the magnitude of the citrus trade of Sicily. During 1912-13, the fresh fruit trade increased greatly owing to the failure of the Californian crop, which partly meets the American demand. Hence the amount of by-products that could be made in Sicily was relatively small, and consequently prices ruled high for the West Indian products. During 1912-13 the quantity of citrate of lime produced by Sicily was only 3,445metric tons and of concentrated juice only 22,042 Imperial gallons—considerably less than the mean annual production or consumption during the last five years.

It will now be more or less evident that Sicily, being the chief source of citrus products, must to a large extent regulate the market. It may be remembered, however, that the total or combined exports of lemons and by-products from Sicily has not increase d for years and is not likely to grow appreciably larger. On the other hand the export of lime products has increased rapidly during the past few years and is certain to increase further, thereby strengthening the position of limes on the market.

Composition of the Two Fruits.

The *Lancet* for March 28, 1908, published the results of analyses of two samples of limes and lemons which showed the lime in all important respects to be the richer fruit. The average amount of juice expressed from a lemon was 37.5 per cent. of its weight, whereas the lime gave 59.0 per cent. Moreover the lime gives more citric acid but less sugar. The citric acid content of the lemon was shewn to be 4.57 and that of the lime 5.60 grams.

Taking the average of the figures from another experiment, we get the following:

		Juice expressed. *Per cent.*	Citric acid in juice. *Grams per 100 c.c.*
Limes	. ..	51·9	7·40
Lemons	.. ..	37·1	7·24

These results show, even with limes not of the first grade, that the lime undoubtedly contains a higher percentage of juice and of citric acid than the lemon, but the difference is not quite as great as the *Lancet* figures seem to show. Dr. Francis Watts, C.M.G., in the West Indies, during 1905 tested limes and lemons grown in Dominica, and as regard the acid content obtained the following results:

LIMES.

	Spineless.	Ordinary.
Percentage of juice	51·3	50 8
Citric acid, grams per 100 c.c. ..	11·70	11·15
Citric acid, oz. per gallon ..	15·71	14·18

LEMONS.

	Italian.	Villa France.
Citric acid, grams per 100 c.c. ..	11·17	11·37
Citric acid, oz. per gallon ..	13·28	15·39

These values relatively are more in accord with the writer's figures, though absolutely the acid content is much higher. It is clear that in the case of the relative composition of citrus fruits great care must be exercised to secure examples which are in a comparable condition. There is undoubtedly a loss in citric acid on keeping.

At all events, the writer's figures are of interest as an indication of the composition of limes and lemons actually being sold to the public during the winter months in London.

It would appear that the lemon contains a larger percentage of essential oils than the lime, possibly owing to the thickness of the skin. But the lime is richer in phosphoric acid and possesses special anti-scorbutic properties—both matters of importance from a dietetic point of view.

Method of Cultivating Limes.

Selection of Land.—In considering the cultivation of limes, it will be convenient to sketch the establishment and general management of an estate in Dominica or St. Lucia, two of the principal citrus islands of the Lesser Antilles.

Flat or gently undulating lands should be chosen if possible, in a locality which is well sheltered and situated from sea-level up to 800 ft. elevation, and possessing a rainfall varying from 80 to 160 in. per annum. If the rainfall is well distributed, 60 in. may suffice. In the West Indies, where limes thrive best, the average temperature is about 80 F. in the shade.

Preparation of Land and Planting.—If necessary, the land is cleared of forest in the usual way, and after planting the seedlings (generally 15 by 15 ft.) the weeds are kept down by cutlassing around the young plants. Before planting, however, adequate provision has to be made for roads, drainage, and windbreaks. Drainage depends upon local conditions of soil and climate, but often it is not apparent that drainage is necessary until the estate is being worked. Care should be taken to plant the trees in straight lines; otherwise, if drainage operations have to be started, grave damage may be done to the groves. Windbreaks are benerally essential from the beginning.

Nursery Work.—Seedlings for planting out have to be raised in special seed-beds in nurseries. Up to the present most of this work in the West Indies has been undertaken by the local Agricultural Departments, which have supplied the estates with many thousands annually. Now the estates are beginning to raise their own. There are no special difficulties attending this work, provided that a good water supply is secured. Success then depends largely on practival experience.

After-cultivation and Manuring.—Assuming that the estate is now planted up, it remains to consider next what after-cultivation

is necessary. The point to remember in this connection is that the root system of the lime tfee is surface feeding. Hence tillage has to be very cautiously performed, and it is generally disadvantageous in the long run to plant catch crops. Very little pruning is required, but attention must be paid to cases of infury by wind and to replacing those trees that die.

As regards manuring, the first essential is to maintain the soil humus. This is done by the careful use of green dressings and by the application of mulch, green manure, and possibly artificial manures. Very little is yet known concerning the manuring of limes. Experiments have recently been started in this direction at Dominica, and in a few years' time we shall be better able to give advice. As a matter of fact, even in a more general way, there is not a great deal known about the requirements of the lime plant. It has been rather neglected, because it was not until quite recently that this plant became prominent as a tropical cultivation. More attention, experimentally, has been given to its products, like the composition of the fruits, lime juice, and oils, than to the plant itself. As already stated, this neglect is being remedied.

Time of Maturity and Yields.—The lime crop takes about five years to come into bearing. Under favourable conditions the trees may yield a few fruits in the third year, but it is nearer eight or ten years before the estate can be regarded as yielding its maximum crop. A lime tree continues to yield for at least forty years after first beginning to bear.

In Dominica and St. Lucia the main crop is gathered from June or July to November or December. Four or six months is required for the development of the fruit from the flowering stage.

The yield per acre of an established lime plantation varies considerably, but a good average is 150 barrels of fruit. The weight of a barrel (4½ cubic-foot contents) of limes is about 160 lb. Hence an acre of good land may be regarded as yielding 24,000 lb. of fruit.

Harvesting.—The gathering of the crop depends upon the way it is to be disposed of. Fresh limes for export as such are picked from the trees in a green condition; fruit from which manufactured products are to be made are allowed to ripen on the tree and fall to the ground.

Production of Lime Products in the West Indies.

Raw Lime Juice.—The greater portion of the crop is disposed of as concentrated and raw lime juice. A barrel of limes gives about 7½ gallons of juice. There is generally a considerable loss owin to the imperfect working of the mill, which may reach 2 gallons of juice per barrel. Fresh lime juice contains 12½ to 14 oz. of citric acid per gallon. In preparing hte lime juice the strictest attention must be paid to cleanliness and to proeer straining.

Concentrated Lime Juice.—In order to reduce freight charges lime juice is generally concentrated to contain 100 oz. of citric acid per gallon, but the degree varies according to market prices. During the process of concentration there is an unavoidable loss of acid due to burning. In the case of open tayche concentration, such as is generally employed at present, this amounts to over 10 per cent, but with the steam coil vat the loss is nearer 2 per cent.

Citrate of Lime.—Under certain circumstances, it is found advisable to dispose of the lime juice as calcium citrate or citrate of lime. Its preparation is simple. The raw juice is run into a vat and heated to boiling point, and is then neutralised with pure slaked lime. The disadvantages attendant on making this product on a small scale are the washing and drying arrangements which are necessary.

It is generally accepted that 76 barrels of fruit are required to make 6 cwts. of citrate of lime, or 1 gallon of juice is equivalent to 1.18 lb. of citrate of lime.

Essential Oils.—Before the fruit is crushed with a view to manufacturing the above products it is usually "ecuelled" or hand-pressed to extract the essential oil in the skin. The quantity of oil obtained by this method of pressing the fruit over a spiked surface varies with the skill of the worker, but in practice 1¾ to 2 oz. per barrel of fruit may be taken as an average figure, though the yield is often considerably higher.

Distilled oil of limes is an entirely different substance. This oil is distilled from the juice during concentration, and although the yield is higher than in the case of the hand-pressed product, being 4 lb. for every 100 gallons of juice, its market price is much less than that of "hand-pressed" oil.

"Hand-pressed" oil usually fetches from 5s. to 6s. per lb.; distilled from 1s. 2d. to 1s. 6d. per lb.

Fresh Limes.—During the last ten years a very considerable trade in fresh limes has developed between Dominica and New York. Latterly St. Lucia and other West Indian colonies have participated in this trade. Great care must be exercised in the matter of preparing the fruit for export. The green fruit must be kept in a packing house for a few days previous to being shipped in order to allow the fruit to quail—that is, lose excess of moisture in the skins. The fruit must be carefully graded, wrapped in paper, and packed in ventilated barrels. Careful handling in all operations is an essential feature.

Whether, in the future, as the area under limes grows larger, the fresh fruit trade will increase greatly, is difficult to foresee. In the United States the lime appears to be replacing the lemon for certain purposes. In the case of the United Kingdom, the trade has never assumed any great importance for several reasons. In the first place, the voyage to England is nearly twice as long as to New York, which puts difficulties in the way of transporting perishable produce. Secondly, the British taste is conservative. The public is familiar with the lemon, and is not generally inclined to discard it in favour of the lime, even if this fruit were regularly available. As a matter of fact, the fresh lime can only be available in any quantity during the latter half of the year, whilst the lemon is always to be had. Furthermore, the fresh lime is essentially an article for immediate sale. It does not keep as well as the lemon, and the retail salesmen do not view it with favour from a business point of view. In New York the consumption during the hot months is rapid and continuous; the fruit can therefore be bought with a certainty of profitable sale.

Of course the peculiar feature of the fresh lime trade is its elasticity or accommodating nature. If prices range beyond a certain point it pays to ship; if they do not, the fruit can be held back for manufacturing purposes. The trade with New York is run on this

principle, and it is worthy of note that growers are not absolutely dependent on this outlet for their produce.

In the case of the United Kingdom it would seem for the present quite unnecessary to go to any expense with a view to pushing the fresh lime trade, as it is likely that more profit is to be made there out of concentrated juice and the essential oils—two products which do not really now come into direct competition with Sicily because because that country produces citrate and essential oils which have special uses.

Nevertheless, if a demand for limes could be created they would both chemically and dietetically withstand competition with the lemon.

(*To be Continued.*)

———:o:———

THE DWARF OR CHINA BANANAS.

In the JOURNAL for October, 1914, page 434, we published a paragraph stating that in view of storms which come often and destroy our supplies of the common or Martinique banana, we should grow a patch of the Dwarf or China banana (Musa Cavendishii) which are not readily affected by wind and would always furnish at least a home supply. We pointed out that the Dwarf banana grew on poorer soils than the tall bananas, could be planted much closer—8 x 8, and so might be made very profitable.

When the Elders & Fyffes steamers first started, we asked Mr. Stockley of Elders & Fyffes, Ltd., who was here at the time, whether his Company would not take these Dwarf bananas as they were then the common banana sold in the United Kingdom, imported from the Canary Islands. They still are the favourites. He stated he would take them if they carried all right. Before that Company started, the Agricultural Society had carried through several experiments in shipping bananas to England by the Royal Mail steamers without any cold storage, the bunches being shipped bare or put up in various ways. It was found that the Dwarf banana carried all right except that when the bunches came to be handled on the other side, when ripe, the fingers readily fell off the hands. At first the Elders & Fyffes Co. had even trouble in carrying the common bananas well, and a good many losses occurred. Then when their steamers were loaded by the United Fruit Co. here, who had more experience in handling fruit, the fruit carried very well. We do not know if there have been any other experiments in shipping bunches of this Dwarf banana of late years; we think not. Since those days shipping facilities for fruit in the new steamers are much improved, and of course probably a good deal of additional knowledge in handling fruit here has been obtained by experience. After the hurricane of 1903, it was again suggested that the Dwarf bananas should be grown and the subject was brought before this Society, but no experiments were carried through. We suggest now, however, that it might be worth while to send a few bunches of Dwarf bananas by the Elders & Fyffes steamers as a trial, to England. These bananas are not liked in the United States but they are liked in England. If they carried fairly well, and kept well, and if the Fruit Companies would take them for the British market, planters could always grow a proportion of these

bananas, and a proportion could always be shipped and given the best space on the steamers. We should not then suffer quite so much from the blowing down of our bananas.

* * * * *

The above was in print before we received the following letter from Captain List, Manager of the United Fruit Company here with whom we had communicated on the subject:—

"With further reference to your letter of the 3rd inst., No. 2591, which letter I referred to our Head Office in Boston, our experience is that the China bananas have to be carried in a different temperature to the ordinary bananas, and for that reason we do not care to handle them. I am sorry, therefore, that I cannot hold out any encouragement to you or other parties interested in the planting of China bananas for exportation."

CHINA BANANAS.

I cut four bunches yesterday fit for American market:—

9 hand equal 47 lbs. weight
9 hand equal 54 lbs. weight
10 hand equal 57 lbs. weight
10 hand equal 58 lbs. weight

My experience.—

1. A 9 hand China has about 10% more fingers than a Martinique 9 hand and weighs about 6% less.
2. The same cultivation and soil that would produce a 9 hand Martinique would produce a 10 hand China.
3. The same area that would produce 200,-50 lb. Martinique will produce 250-50 lb. chinas.
4. The China bananas take about 5 weeks less to come in than Martinique bananas.
5. China bananas do not go down much in a breeze. In the storm of Novemher, 1912, I lost 99% of my fruited Martinique and about 5% of my fruited China.
6. Apart from wind, China bananas go down much more readily than Martinique and require "cotching."
7. China bananas do not lend themselves well to ratooning. They throw out a multitude of suckers, which it is difficult to keep down.

F. G. SHARP.

Trout Hall, Chapelton.

As we knew, Mr. Sharp had some acres of China Bananas (which he had grown purposely for his banana fig business), we asked him to furnish some particulars for publication, in comparison with the ordinary Martinique or Jamaica bananas. No. 7 rather surprises us, for our experience (in an entirely different climate higher in the mountains) was that this variety of bananas did not throw out such a multitude of suckers as the Martinique bananas under the same conditions did.—ED.

:o:

COFFEE.

An article appears on page 287 of the "Agricultural News" for August, 28th, 1915, which describes how a pest of Arabian Coffee has now accommodated itself to Liberian Coffee as a host. The article points out that this is a matter of "prodigious practical importance," and I think the attention of all planters as well as Instructors and others interested in practical and scientific agriculture in Jamaica should

be drawn to it. We have it on record in Jamaica already that the Bonnygate disease of bananas can accommodate itself on Cocoa as a host, thus affording a parallel instance although of course not strictly the same. The practical importance of the occurrence to my mind lies in the fact that it is absolutely necessary when dealing with Plant Diseases that they should be exterminated as thoroughly as possible. It has long been accepted as an axiom by farmers that a plant disease attacking one species or genus of plants was not dangerous to another species or genus and the eradication of disease has often been done in a very slipshod manner owing to the belief in this doctrine. And it behoves all and sundry in dealing with Plant Diseases to impress as strongly as possible on owners of diseased plants, or animals for the matter of that, that it is not possible to too thoroughly destroy both the diseased plants or animals and with them every germ or spore of disease.

W. CRADWICK.

Highgate.

———:o:———

INSECT PESTS ON TOBACCO.

The Government Entomologist, Mr. A. H. Ritchie, addressed a special meeting of the May Pen Branch Agricultural Society on the above subject on October 13, and we herewith publish a summary of the address:—

Before commencing the talk on the Insect Pests of Tobacco, Mr. Ritchie, following on an able paper by Mr. L. H. Palomino on the subject of tobacco growing, stated that he was personally interested in one line of Tobacco growing, viz.: in the production of standard varieties of Tobacco by careful selection and plant breeding, thereby obtaining an even quality of leaf for wrapper or filler purposes with any desired properties to suit the market being catered for. A field of uneven tobacco, where several types or varieties were present, would ripen unevenly, require varying times for curing and reduce the grade as a whole. Self pollination or inbreeding, that is the fertilising of the female element by the male element of the same plant, has heen shown to be injurious to certain crops, e.g., corn. The effect of inbreeding in stock was also well known, resulting in decreased vigour. In tobacco, however, it was not so as Charles Darwin had shown, therefore after selecting the plants which showed certain improvements or were of the most approved type, they should bag the blossoms buds, before opening, with paper bags, the bags being perforated by a sewing machine needle somewhat to permit of ventilation. By so doing the seed would reproduce true to parental type, but if the blossom were unprotected, cross pollination by insects would result and a mixture of types, many possibly undesirable, be obtained the following year. By such methods of careful selection and protection of seed, uniformity of plant type is achieved with a resultant increase of yield and improvement in quality without any increase in the cost of production: this might well be said of other crops as well as of tobacco.

The various pests affecting tobacco were then dealt with in succession.

Cutworms.—These are the caterpillar stage of night flying moths usually of dullish brown tint, which deposit their eggs on vegetation. Land under weed or dense vegetation is preferred for this purpose. The young on hatching pass the day in the soil and confine their feeding to the hours of dusk and night. The pupal or resting stage when the caterpillar metamorphoses into the moth, is passed in the soil. Land should be thoroughly worked up well in advance of thecrop, the theory being that vegetation would be reduced to a minimum thereby and a certain number of the worms concerned would be starved out. Land under cultivation is not so attractive for cutworm moths laying. Land standing in dense weed from one spring until fall when land is again required is not to be approved of. The condition of the fields was such as to provide most attraction for the moths to lay, egg laying went on at intervals from April till August, the cutworms were present, undisturbed in the weedy land only owing to the abundance of vegetation their work was not apparent and they could not expect it otherwise than that cutworms might be severe. Prevailing weather would condition the degree of severity. The theory of cultivation of course is that pupae and caterpillars are disturbed, mechanically destroyed or exposed to enemies, moreover the covering of vegetation is not so dense and so less attractive for egg laying. On several plantations in recent years infestation has been very great, replanting enormous acreages a second and third time being necessary, this means increased planting expenses uneven maturing, uneven housing and the putting back of the procuring of a stand or of the obtaining of the crop into less propitious seasons. The loss must be considerable. Poison baits were advisable sown broadcast over the seed bed or field to be planted. As the worms feed by night, the bait would be in a moist attractive form if put out late in the afternoon.

Kansas Formula.—

Bran	20 lbs.
Paris Green	1 lb.
Molasses	2 qts.
Oranges or lemons	3
Water	3½ gallons.

In preparing the mash, mix the bran and paris green thoroughly while still dry, in a tub or on a concrete floor. Squeeze the juice of the oranges or lemons into the water and chop the remaining pulp and peel into fine bits and add them to the water. Dissolve the molasses in the water and wet the bran and poison with the mixture stirring at the same time so as to dampen the mash thoroughly.

Canadian Formula.—

Bran	50 lbs.
Sugar	½ lb.
Paris Green	½ lb.
Water	2 gallons.

Mix the bran and Paris Green together and moisten with the sweetened water.

There would appear to be a peculiar attraction to insects in a bait containing fruit juice and the success of the Kansas formula has been quite phenomenal where tried.

In certain quarters there is an expressed fear of using these baits broadcast. The quantities mentioned for the Kansas formula are sufficient to treat from 3 to 5 acres—the strewing is therefore very

thinly done. In Kansas, on Grasshopper Day, when infested sections of the state join in a yearly campaign against the grasshoppers (or as popularly known in the recent central and South American outbreaks as "locusts") upwards of two million pounds of bait are distributed by the farmers at state and county expense, and if wild life were endangered game wardens would long since have reported the matter. Our Canadian friends use the bait with astonishing results against the grasshoppers, the Dominion Entomologist reporting results in Quebec province of 900—1,200 dead locusts per square yard.

Equally good results were claimed against army worms and cutworms by those who had tried it out. For climbing cut worms on young corn a little of the bait dropped into the curl of the plant would give results. Wherever cutworms are concerned on field or garden crops poison bait is unhesitatingly to be recommended.

Tobacco Horn Worms.—At present there seems to be a popular misconception prevalent that white or yellow dayflying butterflies noticed in the fields are responsible for this worm pest. This is not so nor has the moon as is believed in certain tobacco growing countries anything to do with abundance. The moth concerned is one having the wings of a pepper and salt mixture of blacks, whites and greys with several yellow markings on the body. They are large and heavily built and fly by night. The eggs ressembling small pearls are deposited usually singly on the under side of leaves and the worm is of a greenish coloration with distinct whitish or heliotrope oblique bands. The name horn worm refers to a protuberance or stump at the posterior end of the body. After reaching maximum growth the worm pupates in the soil at about 4 inches from the surface and light cultivation would exercise a certain amount of control at this stage. As for the use of arsenical poisons on tobacco leaf it is a well known fact that there is local prejudice against its use—poisoning being feared from use of tobacco so treated. From analyses carried out by the Bureau of Chemistry, U.S. Department of Agriculture, of tobacco leaf treated properly 2 or 3 times with Paris Green or Arsenate of Lead, the maximum amount recovered was ½ grain from 1lb. of leaf—now the fatal dose for a normal adult human being is from 2 to 3 grains. Experimental work elsewhere has shown that excessive dosages beyond what is required for worm control must be applied to have any ultimate and deleterious effect upon consumers: moreover such excessive use would result in very apparent injury in the field.

A point to be borne in mind by those raising objection to the use of arsenicals on tobacco is this, that consumers of the weed are all the while taking into their system a more deadly poison in the form of nicotine to which through gradually increased usage of tobacco they have become inured just as the Styrians of old accustomed themselves to excessive doses of arsenic. The application of arsenicals in dry powder form is general over the tobacco growing areas of U.S.A., and no cases of poisoning from use of the product there have come to light. Extensive demonstration work on the use of arsenate of lead upon tobacco are being conducted from the Clarksville, Tennessee Laboratory of the U.S. Bureau of Entomology, and it is not to be supposed our American experts are going to advocate a protective scheme against insects which will endanger human health. Under U.S. conditions with 3,500 to 4,000 plants per acre (10 large leaves

per plant when topped) ¼ to ½ lb. of Paris Green or 3½ lbs. arsenate of lead are sufficient for an acre. Arsenate of lead is used alone but a carrier such as slaked lime (equal parts or 1 to 3 or 4 lime) would be best with Paris Green. Arsenate of lead is most advisable. It adheres better and has in consequence a more lasting effect than Paris Green altho' even this will only be for about one week. No injury to leaf results from excessive doses of arsenate of lead, which could not be said of Paris Green. This injury from Paris Green is due to arsenic in a form soluble in water being present and immediately one has a shower of rain this injury will result especially in low grades of Paris Green. The U.S. Insecticide Law (1910) demands a grade containing arsenic in water soluble form not more than 3½ per cent. while for arsenate of lead it demands not more than ¾ of 1 per cent. theoretically then burning is less possible with arsenate of lead. It is advisable, therefore, on ordering or accepting such arsenicals to demand an analysis which will satisfy the U.S. Insecticide Law.

Two makes of Dust Gun were shown for applying insecticides and their use demonstrated.

Monarch Dust Gun (Tow Lemons Mfg. Coy., Springfield, Tenn.)
$7 f.o.b., New York.

Champion Dust Gun, No. 2, (Leggett and Brother, 301 Pearl St., New York.)
$10 less 10% f.o.b., New York.

Champion Dust Gun, Regular, $8 less 10%.

The Monarch gave most satisfaction to those present, altho' the cheapest gun throwing out the dust in a fine white mist with its powerful fan.

Two grades of lead arsenate were known to the Entomologist, from experience, in a consistency fine enough for dust gun use.

T.P. Arsenate of Lead (Grasselli Chemical Coy., 80 Maiden Lane, New York.)
17 cts. per lb. in 100 lb. kegs } f.o.b., New York, cash on
17½ cts. per lb. in 50 lb. kegs. } order.

Corona Dry Arsenate of Lead (Corona Chemical Coy., Milwaukee, Wis.)
18½ cts. per lb. in 100 lb. kegs } f.o.b., New York.
19 cts. per lb. in 50 lb. kegs }

These are current quotations and slightly higher owing to war.

Splitworm.—This pest does not concern growers much in Jamaica where wrapper is not much grown. The caterpillar of the tiny greyish moth concerned, mines out galleries between the upper and lower epidermis of the leaf, hence the popular name Splitworm. These areas become brown and wrapper leaf so affected is weakened and disfigured. In 1912 at Dade City, Florida, one grower suffered a loss of $12,000 on his 80 acres of shade tobacco due to this pest. One curious point of this insect is that in localities it is a grave enemy of Irish potatoes, e.g., in California at El Monte, two growers suffered an estimated loss of $90,000 and $70,000 respectively (Bulletin 59, U.S. Dept. of Agriculture). In the latter case the tubers are mined and the crop destroyed and potato sections exercise rigid quarantine against infested areas lest tubers containing the pest be introduced.

Flea Beetle.—This is a pest of the seed bed and could be in years a very serious enemy, some growers in U.S.A. resorting to the screening of the seed beds with muslin. American growers experience what may be termed a flea beetle year once in 8 or 9 years—the outbreak of 1907 resulting in a loss of about $2,000,000. The adult beetle skeletonises rounded areas in the leaf. It is a tiny brownish beetle and very alert, its proficiency in the saltatorial art, due to greatly strengthened hind limbs, meriting for it its popular name! The eggs are laid towards the base of plants or on the ground and the beetle grubs feed upon the roots of vegetation. In the seed bed a strong application of arsenate of lead (1 lb. in 12-16 gallons water) will effect control.

Bud Worm.—At times the bud is attacked by caterpillars of certain moths, the corn ear worm or cotton boll worm being at times the one concerned. Sprinkle a mixture, ½ teaspoonful Paris Green and quart fine corn meal, into buds.

Cigarette Beetle.—This is a very common pest of stored tobacco and also of certain drugs and food stuffs. In Clarksville—one of the big tobacco centres of U.S.A.—the beetles in their flight at dusk from the store rooms and snuff factories, invade the homes being attracted by the light and fall into the food displayed for the evening meal in enormous numbers. Snuff blenders do not trouble over this insect as beetle or tobacco all goes into the gross weight of snuff, but to the cigar maker it is a source of endless trouble. The tobacco may be infested when brought to the factory and so the warehouse is invaded: the beetles spreading and commencing to breed in sound tobacco.

It is advisable that all worthless trashy tobacco should be destroyed and the corners of warehouse kept perfectly clear of trash or powder. Tobacco should be examined before admission to storage and if infested fumigated with Cyanide or Carbon bi-sulphide. There is no damage to tobacco so treated. Carbon bi-sulphide for tobacco work should be used at the rate of 4 lbs. per 1,000 cub ft. of space for 48 hours. It would be advisable to keep trays of newly rolled cigars screened or covered and they ought to be boxed so soon as possible, but on no account should cigars be left uncovered in the factory overnight else the beetles will deposit their eggs upon the cigars so left, and the damage committed by the beetles and beetle grubs resulting, will only become apparent later to the poor unfortunate devotee of my lady Nicotone who finds his favorite smokes drawing too freely!! Cleanliness and careful and immediate storage are the keynotes to success in combating this annoyance.

A case of the insects concerned from the Entomologists private collection and diagrams and specimens of injury were on view.

A. H. RITCHIE,
Government Entomologist.

ADVERTISEMENT.

Les Plantations d'Haiti require the services as assistant manager on a plantation situated near Cap Haitien, north coast of Haiti, of a gentleman throughly competent in the line of sugar cane cultivation, having good experience in the use of agricultural implements. Some knowledge of French language useful.

Adress letters to MR. E. HERMANN, President des Plantatians d'Haiti.
Cap Haitien,
Haiti.

CORN COBS,

It is the prevailing practice here to fling away the cobs after the corn has been shelled from them; yet when ground up along with the corn into a meal, corn cobs have a considerable food value, as has been demonstrated by long continued experiments in the United States. As we have before written in this Journal, there are mills so fitted that they can grind up the whole cob with the grain on it, and this mixture makes an exceedingly good food for working horses and mules and also for pigs; in fact, the ash from burned corn cobs is very rich in potash and this is of very great medicinal value for pigs over common wood-ash, which we have often stated should be fed to pigs in small proportions with their food. As the result of an experiment made in the United Ststes where 10 pigs and 20 steers formed the subjects of the experiment, the object being to test the question of the food value of corn cobs, it was found that 1 lb. of corn and cob meal was worth more, as a food, than 1 lb. of meal made from the corn alone. Now as there is a large proportion of the ear, cob, i.e., the cob is worth about 18%, it seems that there is an undoubted waste in not utilising the cobs—waste in two directions, because, first the corn has to be shelled and then ground into meal, whereas the shelling is saved by grinding the corn and the cob together; and secondly, the additional food value in the cob.

It should be borne in mind, however, that the corn and cobs must be ground fine, but the mills are set to do this. It has also to be remembered that to grind whole ears about three times as much power is wanted than in grinding the same amount of shelled corn. The following analysis should be of interest:—

—		Albuminoids per cent.	Digest. Nutrients Carbo Hydrates per cent.	Fat per cent.	Comparative Value
Corn Cobs	from	6	41.6	.2	37
	to	1.1	43 2	.4	49
Corn Stalks		1.1	37.0	.3	36
Corn		8.4	60.6	4.8	100

Professor E. W. Stewart, in his "Feeding Animals," recommends strongly to pass the whole corn crop—stalks, ears, and all—through a large cutter and reduce it to a fine chaff.

That corn cobs, which here are always waste product, have a very considerable value as stock food has been demonstrated in the long continued general experience of American farmers.

A ton of ordinary wood when burned only gives 100 lbs. of Potash, 32 lbs. of Phosphoric Acid, 640 lbs. of Lime.

Sawdust when burned into ash gives, 70 lbs. of Potash, 160 lbs. of Phosphoric Acid, 680 lbs. of Lime.

But a ton of Corn cobs burned to ash, gives, 500 lbs. of Potash 90 lbs. of Phosphoric Acid, 140 lbs. of Lime

WET SUGAR.

The future of the Sugar Industry is so promising, that a few suggestions on the manufacture of that product, especially with reference to the description locally known as "wet sugar", may not be out of place.

Of late years, the manufacture of Muscovado sugar has gradually given place to crystallised or "Albion", and the establishment of factories in Vere and elsewhere has tended to the improvement in quality of these kinds, but those estates which have still kept on the old lines have nothing to complain about, as is evidenced by the quotations received lately from Messrs. Gillespie Bros. and other West India Merchants. If our small planters could be induced to make and put up Muscovado sugar in barrels instead of "wet sugar." it would bring them far better results than the present method of marketing Wet Sugar or "Tin Sugar" (because it is put up in kerosene tins) which is however an article almost entirely used locally, (except for a small export to Colon), and because of this, prices depend on the law of supply and demand, with the result that the fluctuation in the markets from week to week frequently place growers (and oftimes speculators) in "queer street." It is no uncommon event to find sugar selling at 7/- a tin one week, and the next at 3/-, to the dismay of those who have perhaps travelled long distances in the hope of realising the previous week's prices. That some combined effort should be made to make the prices of this product more stable and regular has been apparent for some time, and this phase of the subject will be dealt with in a future article. The making of wet sugar of good quality depends on several things—the use of temper lime, age of canes, soil, weather conditions, description of canes, are some of the chief factors.

1. "Temper."—The use of lime in the manufacture of wet sugar is very important. It clarifies the juice, corrects acidity, and enables the sugar to "grain." I have however heard that some sugar boilers in Clarendon make good sugar without the use of lime. If this is so, then I can only attribute it to the fact that the soil on which the canes grew must be very heavily charged with lime.

The quantity of lime to be used depend on its quality, the age of the canes and weather conditions. It is difficult to lay down any hard and fast rules, there are so many "ifs" to be taken into acount, so that the art of sugar boiling lies in the experience to be gained by continual experiments.

Let me illustrate:—Canes say 10 or 11 months old ground in December (after heavy October and November rains) will take probably 2,500 to 3,000 gallons to give a ton of sugar, yet in April following, with a dry January and February, 1,100 to 1,500 gallons of juice would give a ton of sugar. It will therefore be readily seen that the quality of the lime bears an important part, when the quantity to be used has to be considered. The lime produced at the Penitentiary in Kingston may I think be classed as among the best, and if this is taken as a standard, then other limes must be used in proportion.

It may be taken as a general rule that juice rich in saccharine content, requires less lime than poor juice, also where canes are grown on limestone soil, the quantity of lime required will be less than for canes grown on other soils. But here again, weather conditions may upset matters, so that a good sugar boiler has to be continually

on the alert watching everything, so as to be able to meet every change. Again, where a mill is situated a long distance away from a Boiling House, it has frequently been found necessary to temper the juice at the mill, as the juice in transit took up more acidity than it should, and so necessitating more temper (modern science attributes this to Bacterial influence and so the Chemist now solves the problem on large estates.)

A good sugar boiler starts by first tempering his liquor either in the receiver or in the first boiler, and then when the liquor has reached the third stage, or near to sugar, his experience will tell him whether it is necessary or not to make further additions. It is always best to go easy at first. Most of our small sugar planters depend too much on "guess work," with the result that they are never certain of the quality of the sugar to be turned out, and yet they know from experience that good clear, clean sugar will always bring from 6d. to 1/6 a tin more than the black "muck" so frequently to be seen in the markets.

Again, the firing under the coppers or boilers either makes or mars a "skip" of sugar. When the sugar is nearly boiled, the fire under the boiler should be very carefully regulated—too much, means burnt sugar, and a burnt or cracked boiler. To sum up:—

1. Try not to grind your canes until they are about 14 months old.
2. Plant the best possible descriptions of canes so as to get the largest yield.
3. Only use the best quality of temper lime obtainable.
4. Regulate the use of this acording to weather conditions, and after experimenting and finding the quantity required for a given quantity of juice.
5. Keep a careful note of this for future reference.
6. Watch carefully the firing under your coppers.
7. Skim your liquor frequently and thoroughly.
8. See that your coolers, strainers, gutter and everything else in your Boiling House are absolutely clean.
9. *If you must smoke, do it outside—sugar flavoured with* tobacco is not particularly nice.

In submitting the above, I wish it to be distinctly understood that I do not advocate the making of tin sugar. I would much prefer to see the small planters making and putting up their sugars in barrels, and draining the molasses, thus producing ordinary Muscovado, to sell in the local shop, in preference to "Brown Albion" made on the "Estates."

At Ulster Spring in Trelawny some 30 years ago, such planters as Messrs. Pile, Brandt, Frater, Edwards, Smith, Buckle and others found no difficulty in disposing of their sugar put up in barrels to the Merchants at Falmouth, and to-day I have no doubt that ready sales could be effected with merchants in Kingston and elsewhere. The advantage is this, that the price would not be subject to such fluctuations as frequently occur with wet sugar, whereas, if a man received an order at any time for a fixed quantity of wet sugar at a remunerative price, there would be nothing to prevent his supplying the order.

H. L. Mossman,
Agricultural Instructor.

St. Catherine.

In districts with a marly soil (calcareous formation) sugar can be made without the use of lime or with the use of a very little. The stiffer clays require the use of much more lime. The addition of lime helps in separating earthy and other foreign matter from the liquor allowing of their being easily skimmed off. Lime also causes the hardening of the sugar, indeed grains will not form from sugar canes on most soils without the addition of lime.

The wet sugar produced in Clarendon is on the whole excellent. Of course there are a few districts not far from Chapelton on the May Pen side where the quality is not so good. Otherwise the sugar is of a clear colour, is clean and of good coarse grain. In a Competition I doubt if any other parish known to me could beat Clarendon. Not only are we good at "tin sugar" but at "sugar heads."

S. A. SCHLEIFER,
Agricultural Instructor.

Clarendon.

In this district the reason why Estates, after a trial, discontinued buying small settler's sugar, I am informed, was, what was bright, would not cure sufficiently to make the re-manufacture a paying concern. It contained a large amount of molasses and a proportion of half grained sugar which would not crystalize. The reasons I have gathered from exhaustive enquiry and observation are:

(1). The crushing apparatus used by a great many small settlers is not powerful enough to supply the liquor for boiling in reasonably quick time, and even when Chatanooga mills are used, they have got into the careless habit of allowing their juice to stand in a barrel for some hours. Cane juice when left for any time becomes acid and the result is a tarry, ropy, sugar.

(2) The use of lime is almost universal here, but here a great evil comes in. I have seen lime used which was taken from an old Kiln, and if it were analyzed I think you would find about 60% of calcium carbonate and 40 of dirt. This, instead of correcting the acidity and clarifying the liquor makes it worse. Only this week, I asked a man to show me his temper lime (this, after looking at a sample of his very poor sugar), and he was rather shocked when I emptied the tin at a rather poor looking root of canes and told him that that sample of lime was good enough for a second grade manure.

On the large factories the juice is run into a heater straight from the mill and clarified over a slow fire so that no time is given it to acidify.

Mr. William Rigg of Flint River, formerly overseer of Holland, has pointed out this defect to the sugar growers he has come in contact with and where his advice has been taken and the juice clarified over heat, the results have justified his contention.

I have been lecturing on this subject and good results are not wanting.

(3) Most small settlers here can make a better grade of sugar than that they make now, but as it entails some trouble and carefulness and almost scrupulous cleanliness they "can't bother" till prices are up. If a demand arose for sugar for exportation, I am certain that you there would be some good samples here, and I know that if a given grade was required a great many sugar makers could supply it.

(4) Soil has something to do with it. The canes growing on stiff lands under conditions of excessive rainfall produce as may be

reasonably expected less sacharine in their juice, but the use of quick or temper lime and the careful observance of the rules of clarifying the juice, and strict attention to cleanliness in the boiling house, the mill, the vessels and the sugar boiler, will offset this disadvantage.

None of the large planters will handle small settlers' sugar this year as they have, in addition, to their increased acreage under canes, and larger crops than usual, a large quantity of farmers' canes, and this will tax their capacity to the utmost.

R. C. SOMERVILLE. Agricultural Instructor.
Southern Westmoreland and Hanover.

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USE OF TAR IN PRUNING.

We mean Gas Tar not Stockholm Tar. Tar is now so generally used to dress all wounds on cocoa trees, that it will not be amiss to sound a note of warning as to its abuse. Of the several ways in which tar is misused, the most common and wasteful are:—

1. A too liberal use so that it runs down the bark and burns it. Such carelessness cannot be too strongly condemned. The object of the tar is to preserve the exposed wood from decay until the natural protector, the new bark, grows over it, so only sufficient should be used to cover the exposed part with a thin layer, and it should be *rubbed in* not simply *slopped on.*

2. It is no use tarring the stubs of branches left on the trees after careless pruning: these invariably decay, so that the tarring of their ends is waste of time; these should never be left, but must be pruned off flush with the bark of the branch or trunk of the tree, and then tarred.

3. Tarring rotten wood is useless. New bark will not grow over rotten wood, which moreover, retains water like a sponge and continues to rot.

It is necessary before applying tar to any spot to remove all decayed wood, cutting right into the clear, clean wood.

It should be the object of every planter to practice economy in the use of material, time and labour, therefore, whilst the correct use of tar is most desirable its abuse should be carefully avoided.

:o:

VEGETABLES.

NUMBER OF PLANTS REQUIRED PER ACRE AT VARIOUS DISTANCES.

1 inch x 10 inches	627,279	18 inchs x 2 feet	14,520
1 ,, x 12 ,,	522,720	18 ,, x 30 inches	11,616
2 inches x 10 ,,	313,632	18 ,, x 3 feet	9,680
2 ,, x 12 ,,	261,360	18 ,, x 4 ,,	7,260
3 ,, x 12 ,,	174,240	18 ,, x 5 ,,	5,804
4 ,, x 12 ,,	130,680	2 feet x 2 ,,	10,890
6 ,, x 12 ,,	87,120	2 ,, x 3 ,,	7,260
12 ,, x 12 ,,	43,560	2 ,, x 4 ,,	5,445
12 ,, x 15 ,,	34,848	2 ,, x 5 ,,	4,356
12 ,, x 18 ,,	29,040	3 ,, x 3 ,,	4,840
12 ,, x 25 ,,	21,780	3 ,, x 4 ,,	3,630
12 ,, x 30 ,,	17,424	3 ,, x 5 ,,	2,904
12 ,, x 3 feet	14,520	4 ,, x 4 ,,	2,722
12 ,, x 4 ,,	10,890	4 ,, x 5 ,,	2,478
12 ,, x 5 ,,	8,712	5 ,, x 5 ,,	1,742
15 ,, x 18 inches	23,232	5 ,, x 6 ,,	1,452
15 ,, x 2 feet	17,424	6 ,, x 6 ,,	1,210
15 ,, x 3 ,,	11,619	6 ,, x 7 ,,	1,037
15 ,, x 4 ,,	8,712	6 ,, x 8 ,,	907
15 ,, x 5 ,,	6,969	7 ,, x 7 ,,	888
18 ,, x 20 inches	17,424	8 ,, x 8 ,,	680

Quantity of Seed Required for Various Crops.

Bush Beans.—1 pint to 100 ft. of drill; 1¼ bus. per acre.
Beet.—1. oz. to 50 ft. of row; 4 lbs. per acre.
Cabbage.—1 oz. to 300 ft. of drill; 1 oz. produces 2,000 to 2,500 plants; 1 lb. seed, 20,000 to 30,000.
Carrot.—½ oz. to 100 ft. drill ; 2½ lbs. to acre.
Corn.—¼ to ½ pint to 100 hills; 1 peck per acre.
Cucumbers.—1 to 2 ozs. to 100 hills; 1 to 2 lbs. per acre.
Egg Plant.—1 oz. produces 2,000 plants.
Koh-rabi.—1 oz. to 300 ft. of drill; 4 lbs. per acre.
Leek.—1 oz. to *100 ft. of drill; 4 lbs.* per acre.
Lettuce.—¼ oz. to 100 ft. of drill; 3 lbs. per acre.
Melons (Musk).—2 ozs. per 100 hills; 4 x 4 ft.; 2 lbs. per acre.
Onion.—½ oz. to 100 ft. drill; 4 to 5 lbs. per acre.
Onion Sets.—1 quart to 50 ft. drill; 8 bus. per acre.
Parsley.—½ oz. to 100 ft. of drill; 3 lbs. per acre.
Green Peas.—1 to 2 pints to 100 ft. drill; 1½ to 2½ bus. per acre.
Pepper.—1 oz. produces 1,500 plants.
Pumpkins.—4 ozs. to 100 hills.
Radish.—1 oz. to 100 ft. row; 10 to 12 lbs. per acre.
Spinach.—1 oz. to 100 ft. of drill; 5 to 6 lbs. per acre in drills; 80 lbs. per acre *broadcast.*
Squash.—8 ozs. to 100 hills.
Tomato.—1 oz. produces 2,000 to 2,500 plants.
Turnip.—1 oz. to 200 ft. of drill; 1 to 2 lbs. per acre.

PLANTING TABLE.

This Planting Table for Vegetables is based on results in a cool mountain district and clayey soil. Local conditions will vary this to some extent.

Vegetable.	Depth to plant.
Artichokes	3 in.
Asparagus, Seed	½ in.
Asparagus, Plants	8 in.
Beans, bush	1½-2 in.
Beets	½ in.
Brussel Sprouts	¼-½ in.
Cabbage, early	¼-½ in.
Cabbage, late	¼-½ in.
Carrot	¼-½ in.
Cauliflower	¼-½ in.
Celery	1-8 in.
Citron	1 in.
Corn, sweet	2 in.
Cucumbers	1 in.
Egg Plant	½-1 in.
Kale or Barecole	½ in.
Kohl-rabi	½ in.
Leeks	½-1 in.
Lettuce	¼ in.
Melon, musk	1 in.
Melon, water	1 in.
Onion, seeds	½-1 in.
Onion, sets	1-1½ in.
Parsley	¼ in.
Parsnip	½-1 in.
Peas	2-3 in.
Pepper	½ in.
Potato, Irish	4-6 in.
Pumpkin	1-1½ in.
Radish	½ in.
Rhubarb, plants	2-3 in.
Salsify	½ in.
Spinach	½-1 in.

Squash, summer	1½ in.
Squash, winter	1½ in.
Tomato	3-4 in.
Turnip	¼-½ in.

PLANTING DISTANCE.

Vegetable.	Distance between rows, horse cultivation.	Distance between rows, intensive or garden cultivation.	Distance between plants in rows.
Artichokes	3-4 ft.	3 ft.	3 ft.
Beans, bush	2½-3 ft.	1½-2 ft.	4-6 in.
Beets	2 or 2½ ft.	1-1½ ft.	3-4 in.
Cabbage, early	2½-3 ft.	2-2½ ft.	18 in.-2 ft.
Cabbage, late	3 ft.	2½ ft.	2-2½ ft.
Carrot	2-2½ ft.	16-18 in.	2-3 in.
Corn	3-4 ft.	2-2½ ft.	3 ft.
Cucumbers	6 ft.	4 ft.	1 ft.
Egg Plant	2½-3 ft.	2-2½ ft.	1½ ft.
Kohl-rabi	2-2½ ft.	1½-2 ft.	6 in.
Lettuce	2 ft.	1-1½ ft.	4-6 in.
Melon, mush	6 ft.	6 ft.	12 in.
Melon, water	7-9 ft.	4-6 ft.	4-6 ft.
Onion, seeds	2-2½ ft.	1-1½ ft.	8 plants to 1 ft
Onion, sets	2-2½ ft.	1-1½ ft.	1 in.
Parsley	2-2½ ft.	1-1½ ft.	2-4 in.
Peas (Green)	2½-3 ft.	2 ft.	½ in.
Blackeye and Caroline Cowpeas	3½-4 ft.	2-3 ft.	2 ft.
Pepper	2-2½ ft.	1½-2 ft.	15-18 in.
Potato, Irish	2½-3 ft.	2-2½ ft.	9-12 in.
Pumpkin	6-8 ft.	6-8 ft.	6-8 ft.
Radish	2-2½ ft.	6-12 in.	½-1 in.
Spinach	2-2½ ft.	6-12 in.	½-1 in.
Squash	3-4 ft.	3-4 ft.	3 ft.
Tomato	3-5 ft.	1½-2 ft.	3 ft.
Turnip	2-2½ ft.	1½-2 ft.	4-6 in.

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SEASONABLE HINTS.

We dealt with garden vegetables pretty fully in last issue, and what we wrote stands good for November and December. Good seasons have generally prevailed all through October, and at the end a superabundance of rain. Those who had already good drainage—trenches judiciously spaced and made—in their fields will benefit as very little could be done from August to remedy any failings in this direction. Those who do not believe in a thorough system of trenching should read the short article in our last issue on "Save Your Land" and then go through their fields with a clear mind, a critical eye, and use their powers of reasoning. If an internal debate is necessary and it is against the necessity, the utility, the wisdom and economy of thoroughly trenching on hillsides as well as in flats and valleys, we should be glad to have the arguments. It is only right we should have them.

As soon as the weather clears up for a few days get trenches cleaned out, scattering the earth between the plants and trees, not piling it on the banks of the trenches, and certainly not piling it round trees. It is through the continued wet weather that trees such as cocoa, coffee, oranges that have been badly planted, usually begin to suffer, *although the result of the first sickness may not be visible until later.* Deep planting or what has the same result, the piling of earth close against the necks of trees, will surely result in such trees having a very short life, and only where the soil is very good indeed, do they grow fairly well for a certain number of years. The tap root rots, then others of the main roots follow and sometimes the necks of the *trees begin to show "collar rot." Then grubs commonly called "makakas" join in,* and eat the affected toots too. On the banks of streams and rivers the overflow of the water leaves mud and rubbish against cocoa and other trees and this requires to be cleared away expeditiously. All cocoa trees, and this applies to coffee and oranges, indeed all economic trees—not counting bananas in this connection a tree—*should have their necks or collars free of soil, where they are already deep in the soil*

or as often happens in weeding and forking, soil has been packed round the lower part of the trunk, they should be opened up, and some lime dusted in: lime is a good soil disinfectant.

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The soil disinfectants sold under such names as Vaporite, Apterite, Pestite Vertox, etc., are good for driving away stinging ants, (we have used them continually for such purpose) which affect the roots of the trees, especially young cocoa planted at stake. and these stuffs certainly kill wire worms and kindred pests in the soil; and we think would at any rate be disagreeable to the large grubs when they attack the upper roots of cocoa, but we do not know from any experience whether these stuffs would drive away such grubs deep down in the earth where they attack some of the roots.

At any rate it would be rather expensive to use them freely, but still if effective, are not so expensive as the loss of a bearing cocoa tree. These proprietary articles are worth experimenting with.

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POTATOES.—Just as Seed Corn is often planted too deep, in the growing of Irish Potatoes, the tubers or sets are often planted too shallow. Sets planted should not be covered with less than 4″ deep of earth. That does not mean that the more earth is piled on top of them, the better will be the return—more than 6″ will reduce the yield. The limit should be from 3″–6″—as near 4″ as possible.

* * * * * *

COCONUTS.—To keep down weeds between coconut trees in a plantation and at the same time enrich the soil, there is nothing better to grow than Bengal Beans. The growth on fair soil is enormous, the soils generally being waist deep for 3 months growth, and they only need to be planted once a year. We have very often written like this but we do not know of more than two planters who have interested themselves in this plan. It is indeed hard to get the fact to sink into the minds of planters that one cannot go on exporting, thousands and thousands of tonr, from a plantation of such a product as the coconut, rich in protein, without impoverishing the soil and reducingthe quality and buantity of the crop sooner or later, marvelleous as some Jamaica soils are.

* * * * * *

BANANAS.—Crowds of young suckers now surround the old stumps broken and cut after the storm of August. Now is the time if not done before, to make a selection of the best and cut out the others. Many have left these suckers to find out in time which are the best and strongest as some though small at the time of the storm might have been damaged. Test each with the hand and select the strongest.

There will be very little fresh planting of bananas this season but now is the time to begin preparing the soil—generally speaking. Early preparation means a lot especially on heavy soils. In the mountains, wherever growth is slow, planting can be done now.

Seasons have been excellent; "old time" weather has returned and the soil everywhere is thoroughly saturated as it has not been since the end of 1906.

* * * * * *

Large crops of canes are assured, no matter whether dry weather may now follow; in fact that would be best for the ripening of canes.

Bananas are making marvellous growth but all the good seasons that can possibly ensure will not produce good fruit next year, except in the sheltered valleys where banana plants escaped severe damage by wind. There will be a great proportion of short bunches and short fingers too.

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COFFEE.—We often wondered how coffee trees managed to live and bear at a very old age on soils that have been heavily crowded and shaded for a score or even two score years without any drainage. True the soils were mostly those with natural drainage, but sometimes even heavy soils have old coffee trees in good bearing.

Now a report from the Porto Rico Department of Agriculture tells us that from the result of experiments and investigations there, coffee is evidently one of the acid tolerating plants, as benefits from lime alone applied to the acid soils of Porto Rico have been doubtful.

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COCOA.—The most productive cocoa tree experimented with in Porto Rico yielded the equivalent of about 4 lbs. of dried beans (commercial cocoa) with 7d per lb., equal 2/4.

STOCK NOTES.

WAR HORSES (TYPES WANTED.)

WAR HORSES (TYPES WANTED—It would not be out of place, at this juncture, to state something of needs, in the war of army horses. British buyers are in the United States and Canada, securing types which are requisite and necessary. In order to understand what they are after I present some facts as to the demanded makes and shapes. I have been permitted by the English Board of Agriculture to send to THE GAZETTE these facts and the photographs which accompany these remarks, and to them I owe this necessary acknowledgment.

The British War Office requires only horses for active military purposes that are from four to twelve years old. Crib-biters, wind-suckers, parrot-mouthed or undershot horses, and animals with capped elbows, damaged knees, or deficient teeth are not admissible. Souudness in eyes, wind, and limb is essential; no animals with worn, upright, or overshot joints, and none with curby hocks are passed.

The cavalry horse must be a deep, short-legged short-backed, good-barreled one of the hunter type, *with substance and quality and true action. He must move* without brushing the joints. Light, active, well bred horses that move truly and well in their paces, are nicely ribbed-up, haue plenty of bone and short backs, may thus be said to represent the ideal cavalry type. This horse's height at four years should be 15.1½ to 15.2½ hands, and more than four years he should measure 15.2 to 15.3 hands.

For the artillery type the required is a weight-carrying hunter, showing quality and ability to gallop in a gun team. These horses should he of the combined rider and driver type, with short backs, some bone and depth through the heart. They *must be able to gallop when draging guns and to maintain the pace for some considerable distance.* Their work is in fact very closely allied to that of cavalry when occasion arises. Here the height at four years old is 15.2 to 15.3 hands, and over four years 15.2½ to 16 hands. The horses whose picture is given is a wheeler for artillery work and cost $210 at four years of age in Ireland. He stands 15.3.

The Royal Field Artillery horse is also of the weight-carrying hunter type, with lots of bone and substance, a deep heart, and capable of drawing a big weight *at a fast trot over rough ground and sometimes deep going.* He must also be able to gallop into action. At four years old he should stand 15.2 to 15.3 hands high, and over four years 15.2½ to 16 hands. He must be active and stout-hearted, a true goer all the time. The horse in the picture shows power and at five years stands 16 hands. He cost $210.

For the engineers, draft horses known as "parcel vanners" are the sort needed. Whatever their special duties, be they trotting long and fast journeys, or on movements that are slow and heavy, it must be ever recalled that the load they are to pull is a hig one and so requires a horse of good weight. The height at four years old *should be 15.2 to 15.3 hands, and at over that age 15.2½ to 16 hands.*

The horse should be able to gallop with a hig load behind him.

The Army Service Corps horse, also of the war type, must be able to trot with a good load behind him, but he does not require the pace of the artillery horse. His height should be 15.2¼ to 15.3 hands at four years old, and over that age he should stand 15.2½ to 15.3½ hands.—*Breeders' Gazette, Chicago.*

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We trust that this infomation will serve for those who have been writing us asking why the War Office do not require horses from Jamaica. We simply have *not the type of horses wanted, in any quantity.*

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In *re* loss of animals by exposure to weather, I would suggest that the Society consider the question of making the tethering of pigs illegal. An enormous amount of cruelty is committed apart from exposure to the elements through this practice, the loss by exposure must also be very very great.

(Sgd.) W. CRADWICK.

Highgate P.O.
30th October, 1915.

We are afraid this is not a matter for special legislation for pigs alone. Prosecution for cruelty to animals might be instituted but it would be most difficult and tedious to prove a case. Goats suffer even more than pigs from exposure to heavy rains. Then again, if it was made compulsory to keep pigs in pens, we have noticed that pigs that are tethered are a great deal better off than pigs put up in pens as these are usually made. The pens are small, and in spite of all the advice and recommendations given through this JOURNAL, these pens are usually deep in filth, and not covered, so that when heavy rains come, the animals are standing in filthy water,

unable to lie down; then there are cases of cramp, rheumatism, and many deaths We are afraid that only education can help. So many people are absolutely oblivious to the fact that animals feel; but when it is shown what losses occur through such neglect and lack of foresight, this appeal made thus to the pocket, has effect. The Agricultural Instructors have a great deal of work to do like this, side issues, perhaps, and not usually taken into account as part of their work but still it is most important work to show how losses to small stock may be avoided by the exercise of a little forethought.

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POULTRY NOTES.

In last JOURNAL we wrote of some trouble that fowls in St. Mary appeared to suffer commonly from (as reported to us) and which caused a good deal of mortality. One symptom common to all was that the fowls dwindled away; but this is a symptom of a good many different troubles. For instance, there is a disease known as "Wasting," and which is a bit of a mystery as the fowls seem to suffer from no organic disease. Then in the different forms of liver trouble, fowls dwindle away; suffering from neglected forms of roup they waste away; from tuberculosis of the lungs or any other organ they waste away. A hen supposed to be a typical specimen, sent to us from St. Mary was kept a week; it had the outward symptoms of liver disease, and its droppings were typical of an advanced form of liver disease, and on being killed and opened, its liver was found to be badly diseased.

On the other hand three fowls sent from St. Mary to the Government Veterinary Consultant—Dr. Grey—were found on being killed and opened to be suffering from bronchial catarrh. This trouble however, should be very noticeable by those familiar with roup (cold or catarrh) in its earlier stages, which if neglected may become chronic.

The wet climate of St. Mary and the usually heavy soils are favourable for causing roup if the fowls happen to be closely inbred, as they often are where fresh blood is not regularly introduced, or, where home-bred cocks are used, and close trace is not kept of the particular relationship (which is practically never done); the fowls closely bred have not much vitality to withstand unfavourable circumstances, and are usually given a badly balanced diet.

Fowls that hang around the yard should be got rid of: they are the birds that suffer first from any trouble that comes along: commonly they suffer from liver trouble. Fowls that wonder and scratch, not only keep in better health because of the exercise, but in their wanderings find worms, grubs and insects, and so balance their common diet which is always too starchy and monotonous.

* * * * *

To tell what particular trouble affects a fowl that is dwindling away is not easy, but any form of roup, or catarrh is very noticeable, as we have already written, in the early stages, not so easy when the fowls have apparently recovered from the stage of flowing roup—the running at the nostrils, the watering or gathering of roupy matter in the eyes, and are in the dry roup or chronic stage: but usually even then there is one prevailing symptom—that is, the tainted breath, that skilled nostrils can nearly always detect. There is another symptom, not always prevailing, and which is hard to describe and may sometimes be mistaken for a symptom of gapes.

EGGS.—All during October eggs have been selling at 1/6 per dozen for the ordinary small country eggs, and as much as 2d. each has been given for good select-eggs of good size and guaranteed freshness. Such prices will continue on until about 2 weeks from Christmas. It is the same every year; probably it will be a little worse this year because we had a big wind and rain storm in August and also one in September which sadly battered the fowls that were left to roost on trees, and that is about 90% of the poultry in the Island.

Just as bananas are timed to come in, in the spring when prices are high, and just as that is not the natural season for bananas to come in and it needs skill to bring them in at that time, so by the application of skill and attention, eggs can be produced from August until the end of the year when prices are high. It may be said that if plenty were produced the prices would not be high, but as a matter of fact half the people accustomed to eat eggs reduce their quantity because of the difficulty of getting good fresh eggs between September and December. In rainy weather and when the cool weather comes, more eggs are used. It is estimated that out of every dozen country eggs bought in the city of Kingston, there is at least 25% bad—not eatable, so that there is good money for a trade in eggs sold under guarantee of freshness, at 25% price over the ordinary market price.

In order to get plenty of eggs at this time next year, the time to begin preparing for that is now. Every few people use incubators—very few keep poultry on a large enough scale to warrant the use of an incubator; they have to depend upon using fowls or turkeys to hatch eggs, and often when they have got eggs to sit there are no sitters. We ourselves have at times used incubators and have always found a small one very handy to hold in reserve and use when no hen sitters or turkey sitters were available, but for stock birds we prefer the natural means of incubation all the time. Incubators can be got with a capacity of 25 eggs upwards—we used a 50 egg capacity. Some use 250 size, even over, here. In some centres in the United States capacities of thousands of eggs are used. Still, incubators even of the small sizes are beyond the reach of most people—not so much the purchasing of them, but the means of running them carefully. So most people still require to depend upon hens. A good many of those, however, who cannot rear turkeys to advantage, should always keep 3 or 4 hen turkeys as sitters to hatch fowl eggs; we have done so for many years and find them most satisfactory. They can cover from 16 to 20 fowl eggs, and if two are set together, and a bad hatch ensues, the chickens can be given to one, and the other set again.

In order to get pullets to begin laying next September or October (1916) chickens of the heavier breeds require to be hatched in January and February, and chickens of the lighter breeds in March and April, at latest. Fowls of the Leghorn and Minorca breeds are hardly sitters at all, and crosses of these breeds do not readily sit, at least early in the year. It is generally found that the common little fowls of the country people bought at this time and *well fed* (such good feeding as they are not accustomed to)—will lay 10 to 15 eggs in January, and go to sit, and although they do not cover many eggs they can be depended upon, failing one's own stock of fowls, to hatch at the end of January or in February; and if 2 or 3 or 4 are set together, then in the event of a bad hatch, the broods can be put into 1 or 2 lots and the other hens can be set again, provided that they are well fed and well watered. We have known sitters even to increase in weight while brooding when well attended to. A good deal depends upon the feeding and the kind of run the fowls have, as to how long the pullets will take from hatching to laying, but 7 to 8 months should be allowed at least. Indian Games take 9 to 10 months and are not profitable for egg laying. The fowls that lay earlier than 7 months never make so much body and, of course, we here want some size in our fowls.

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Another result of the storms has been outbreaks of roup. Fowls roosting on trees were exposed to the heavy rains and wind for several days at a time, and even those under shelter had to go about in pools of water. Bad attacks of roup of course, become noticed and are attended to, but slight attacks are not noticed, not attended to, and often become chronic; the fowls simply do not thrive, look thin, may still eat plenty, and some ultimately recover of themselves in favourable weather; some dwindle away, may even become tuberculus. We have often described the treatment for roup. All forms of colds and bronchial troubles generally are slumped under the general term—roup.

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COMMENTS.

DIARIES.—Every year we remind our readers of the usefulness of keeping a Diary to note down the chief events on the estate or holding. So many small settlers do not keep books at all, that a Diary could also be made useful as a record of money transactions, as a beginning of more extended book-keeping, when the usefulness of cash records is proved from experience. Every one of our readers should use a Diary.

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CO-OPERATION.—Co-operation, like charity begins at home. When people can co-operate in small things in their own district, and do so successfully, they will be preparing for larger and wider co-operation. The latter cannot be successful when the simplest forms of co-operation are not yet understood and practiced.

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SOY BEANS.—We know of two places where these Beans have been very successful. If they can be grown commonly, as we have written before, they would be a very valuable addition to our food-

stuffs as they are more nutritious even than our common peas and beans. Soy Beans are the mainstay of the Japanese nation and form the chief source of protein in their diet. One grower here who has had success with these Beans, mentions as follows:—

"These Beans bear in poor soil and the pods adhere so securely that strong winds or heavy rains do not disturb them. Again they are drought-resisters."

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CENTRIFUGAL MACHINES.—Some of our Branch Societies in sugar making districts, where large quantities of small settlers sugar is made have been enquiring about a cheap Centrifugal machine for making sugar locally—a good household sugar that could be sold in shops or exported—on a small scale to be dealt with centrally. On enquiry the cheapest machine we can find is one costing £174 with no mixer—£226 with mixer. Without a mixer the mass of wet sugar must be broken up by hand and dumped in the machine direct. The machine mentioned would grind about 800 lbs. of sugar per hour. Power—whether water, steam or oil, would of course be additional.

———:o:———

JOURNAL.—The Chairman of a Branch Society has suggested that at each Meeting a member (or members) of the Branch should be appointed to read the last issue of the JOURNAL previous to the next meeting and select therefrom what in his opinion is the best and most useful article for the particular Branch and discuss it at the next meeting and that it should be put on the Agenda as a part of the regular business of each meeting.

This is an excellent idea and a very practical method of insuring that the articles in the JOURNAL reach most of those which they are intended for. We know from letters we receive that the JOURNAL is often read so casually that we are written to, asking for exactly the same information as was already given in the JOURNAL the month previously.

———:o:———

SAUCE.—We calculate that 99% of the sauces used on tables in Jamaica is imported, and that perhaps 80% of the sauce used is the common brown sauce, commonly called 'Worcester Sauce,' not special sauces like Tomato, etc.

Yet we have here in Jamaica endless opportunity of making our own sauce. We have as the best basis of any sauce—probably used by most manufacturers of brown sauce abroad—Cassareep, made from the juice of Bitter Cassava. This is largely used we believe in British Guiana (Demerara) and in French Guiana (Cayenne). We imported a sample here and certainly it was strong and pungent enough, yet withal good. It is stated to have certain beneficial qualities, particularly of a digestive nature.

We asked in this JOURNAL some months ago, how many here could tell what *Cassareep* was, and we found some who did not know.

A very fine Tomato Sauce can be made from the small pungent wild tomatoes, with other flavouring, and Cassareep as the basis. The juice of these wild Tomatoes is a good stomachic and liver tonic Then there is Tamarind Sauce, seldom seen, but very fine also.

Mrs. Fray of Spring Plain has valiantly struggled to put up in very nice and attractive forms many preparations of Cassava, and one of these is pure Cassareep, for use in making Sauces at home; and also a table Sauce ready made. Lots of native preparations

which might be made marketable, are put up so roughly and carelessly that people will not purchase them, but Mrs. Fray's preparations are fit for the most fastidious market abroad. We commend them.

——:o:——

PLANT USEFUL TREES.—*There are at Hope Gardens some thousands* of fine young Breadnut trees in bamboo pots now ready to plant out, and some thousands of strong young Mahogany trees, also just ready to plant out.

These are now offered free and our readers should take advantage of the offer. Breadnut trees are most useful to plant in odd corners on all estates large and small, especially where there is rocky land; the foliage makes most useful fodder for stock and the timber is very valuable for indoor work, making beautiful boards.

Everyone knows how valuable Mahogany is and as these trees are becoming scarce, many should be planted out even though it may be the next generation that will benefit.

Apply to the Hon. Director of Agriculture, Kingston, postage to whom is free. Postage to this Office, however, is *not* free. This is a reminder to many who send unstamped letters to *us* on which we have to pay double postage.

——:o:——

KOLA.—At one time a considerable number of kola trees were planted in the Island and some estates had a good many of these trees growing, but the demand for kola was fluctuating and precarious, and as some proprietors considered the kola trees interfered somewhat with their cocoa through which they were planted, a good many cut the kola trees down. We think it was a mistake to destroy these, for kola trees grow larger than cocoa and when trimmed high make a very good shade. There is a large demand for kola this year at a good price, and those who have kept their kola are pleased. Any one who desire tos plant kola trees can get them from Hope Gardens at 1d. each. We do not offer any opinion as to the wisdom of planting kola because when the trees come into bearing circumstances may be quite different from what they are now. Some proprietors think—and rightly—that it is better to have their eggs in a good many baskets, and when shade trees for cocoa are required, where soil and conditions suit other trees of some commercial value like rubber and kola, it is better to plant these through the cocoa rather than Immortelles that are of no commercial value, (except that they are leguminous); they are also easily broken in a storm, which is a great disadvantage.

We know an old cocoa plantation giving a large yield, and it has kola, nutmegs and rubber trees—old trees—bearing well, all interplanted, while along the river banks, the mistake was not made of cutting out the bamboos—the natural protectors of the banks—and not replacing them with something of commercial value, for there are great cedar and rubber trees growing, the roots of which now form a rampart against flood waters.

It is the failing of some to sacrifice everything because *of the* present day prosperity of one crop, such as cocoa, but the old people who planted out cocoa twenty-five years ago, took care to diversify; and twenty years hence, the planter who has some *other trees of fair* commercial value in addition to cocoa, will not require to grumble that some years between he got a little less from his cocoa than some neighbours—probably his average over the series of years will be better. Look ahead and diversify.

WASTE—MILK, BUTTER, CHEESE.—Other kinds of waste not so evident are our unutilized resources. Take the very large amounts paid for Condensed Milk, Butter and Cheese, and yet thousands of unmilked cows roam over our pastures, and thousands of settlers cows are tethered out on rope, which only need to be regularly milked, with care and knowledge to yield a good supply for the household, and where there are several cows kept, give enough for butter too.

A country like this should be running co-operative creameries for making butter and cheese, supplying all our wants, importing no milk, no butter, no cheese, no ham and no bacon (as there would be enough milk under an intensive system to spare to feed a pig or two) raising fine quiet utility cows of double value, the present system or lack of system; utilizing also every corner for raising feed and saving the manure from the yard-fed cows for application to the soil. In every way the country would be the gainer, in saving imports, producing better cows, making the soil richer.

———:o:———

TICKS.—This Society has two active campaigns going on, which means that among our various efforts these two are specialised on for a time in some parishes. One is Corn Growing: increase of crops by better seed, better cultivation, proper drying, careful storing. The other subject is, Ticks. We are out against these pests in force; and now, when there are good seasons, plenty of grass, plenty of water, is the precise psychological time to get ticks in hand by spraying. There are two dipping or swimming tanks for cattle in the Island, and there will be more perhaps in time, central dipping tanks and compulsory dipping, if those who own cattle will not take steps of themselves to get ticks well exterminated.

Meantime, the effort to be made most easily and economically is by spraying with a hand spray for a few cows and a 2½ or 4 gallon tank spray for larger numbers.

———:o:———

RUBBER.—It is stated that the price of rubber in Germany is £3 per kilogram (2 1-5 lbs.), potato flour, £3 6/, per 220 lbs. and vinegar 4/, per kilo (2 1-5 lbs.) The price of rubber in London is 2/3 per lb. compared with Germany at 30/, per lb. Of course supplies are shut off from Germany, and this affects the price in those markets that are open, making it cheaper, owing to less competiition.

———:o:———

SEED CORN.—We are keeping seed corn from September until the spring—(1) Shelled and dry in a box with Napthalene; (2) in the cob, husked and hung up in an open shed; (3) in the cob and husk hung up in a close store. We shall see which gives the best seed in January.

* * * *

Your seed corn has grown splendidly; not a single miss.

The Guinea Corn was not so good; a good many of the grains seemed abortive.

Malvern Correspondent.

But the Guinea Corn (White) had been kept since January last, and we did not expect it to be planted later than August this year, so relaxed cure. We have had a demand, however, up to the end of October.)

CORRESPONDENCE.

Will you kindly allow me through your columns to congraulate Mr. W. Kirkpatrick on his article in the October JOURNAL *re* utilization of Waste. In my opinion, the waste of blood and bones at the Kingston Slaughter House, if it actually takes place, is little short of criminal. Of all the "artificial" manures which have been tried on the northside none have proved anything like so satisfactory as blood and bones; if these were properly combined with the other wastes from the slaughter house they would sell like hot cakes, and an increase in our exports would be bound to result.

Other wastes occur to me, what becomes of the residue of the Kingston "Dunp Heap"?

Who is responsible for the weekly or oftener bonfire of banana trash alongside the V on the Railway track at the Kingston Railway Station? It would appear ridiculous to think that the commonest labourer in the Jamaica Government Railway does not know that this is the most valuable manure in Jamaica, and however weary we may get at times of saying it, "Jamaica is dependent entirely on Agriculture." Surely steps should be taken to stop that Bonfire and its waste of valuable material, to say nothing of the clouds of ashes which fill ones eyes and nose sometimes when travelling by train.

The use of these wastes combined with a proper system of cultivating leguminous crops and the use of lime would increase the fertility of our soils many fold.

"CONSTANT READER."

1st Nov., 1915.

A valued correspondent and frank critic writes:—The October JOURNAL is to hand and I think it is a first-class number.

(1) Referring to corn, what is the cost of a machine for grinding up corn cobs with the grain on, ready for feeding purposes?

Here is another item of information for you on corn, 14 acres of aland were planted on an estate in St. Mary through bananas, 2½ bushels of seed corn were used for planting and the uield was 394½ bushels. Not bad for St. Mary which s not a corn parish.

(2) Where can rice bran be procured and at what price? I gather from the Journal that it is useful for feeding all kinds of animals including poultry.

(3) I notice what you say about the dog as a parasite distributor, what is in your opinion the best wash for dogs? Paranaph seems to be the best one that we have discovered so far, perhaps you know of a better. How can dogs he kept free of worms, or the presence of worms in doge be detected?

(4) Your note on Tansy for Hook Worm is also very interesting; Why cannot we develop a manufacture of this kind in Jamaica? Goodness knows there is Tansy enough in some parts of the Island and if it is good for anything like that, why not utilize it, it grows on land that will not even feed a cow to 10 acres, and if the Tansy could be made of value it would mean an enormous increase in value to some propertiesl.

(5) Then again the salt beef and pork problem, why is it that this cannot be made a business in Jamaica, could not beef be salted in Kingston and pork as well, could it not be carried on the Jamaica Railway in a refrigerator car so that the enormous loss and expense in transporting live animals from the Montpelier district, from St. Elizabeth, and St. Ann might be avoided, send the price of cattle up, a penny per poind, and reduce the price of heef by twopence, and pork in the same way.

Is it want of co-operation all round or simply because we do not understand or realise the possibilities of the country we live in?

There is an old Jamaica proverb that "Finger always say look yonder," and there seems to be a great disposition to believe that wonderful things can be done without any trouble anywhere but in Jamaica. Of course we should have to make the home grown product equal to the imported one and similar in appearance, flavour and everything else, before it would sell readily. I am afraid there is too much a tendency when attempting to produce things locally to study ones individual taste and try to force these on oes customers.

(6) Take a common article which ought to be much commoner still, that is butter, people will give you some awful stuff, call it fresh butter and expect you to like it, while neither in appearance or flavour has it any of the characteristics which one has been led to consider constitute good fresh butter. Mind you I do not mean to say that there are not plenty of people in Jamaica who can and do make good fresh butter and probably salt beef, pork and bacon too, but in order to make this a success they would have to consistently imitate the ordinary standard.

CONSTANT READER.

We are glad you think the Journal for October good. It is not an easy task to keep up a monthly Journal with interesting and likely to be useful articles, when you consider the different classes of cultivators we have to cater for.

2. Mills for grinding up corn on the cob, and which can also he set to grind grain, can be had for about £4, i.e., by hand. Most of such mills used in the United States, however, are made for power. We have one such mill here now that can be used with a sweep—you know what that means—a donkey, cow, or mule, can pull it like a cane mill, and it is cheap. It can grind large quantities at one time, and has extra grinding parts, all for £6.

3. The return of corn you mention is very good, if I take it that the corn was not planted close to the bananas; it would work out at 28 bushels an acre for the whole field.

4. Rice Bran.—The new crop will he available in the month of January. We shall be getting a lot up by drogher when it is available, and you could book your order through us, if you care. It comes very cheap, about half the price of corn weight for weight.

5. Paranaph is a good wash for dogs, but it has to be used different from the instructions. The strength given from the Laboratory used as an oridnary wash, does not kill fleas. What we do is to wet the dog—not soak him to drip—merely wet the skin, then smear the hand with Paranaph and rub it wel in. Then let him stay for half an hour to let the Paranaph dry in, and then wash off—if washed off immediately the fleas are not killed and recover. This should be done once a week. This keeps dogs fairly free of fleas. A piece of cloth dipped in kerosine and rubbed along the small of the back between whiles, is useful for dogs that are exposed to reinfection and are not pet dogs; kerosine would be objectionable for a dog that occupies the best cushions in the house, or jumps up on a lady's lap.

6. To keep dogs free of worms they should be dosed once a month. We have been trying to get a dog ball made up and put on the market that would be cheap, easy, and handy to use; such a thing would be most useful and would have good sale. To keep dogs free of all kinds of worms otherwise, takes a combination of drugs—Iron, Santonine, Thymol, etc.—often bothersome to get and to mix in the right proportions.

7 If a decoction of Tansy, commonly used for worms, is effective against Hook Worm, this should be investigated and proved by the Chemist's Department.

8. The difficulty with many native products in Jamaica against the imported from corn down to beef and soap—is that we are a small community and changes happen very abruptly. In a larger country what affects one part does not often affect another, and there is railway communication so that any enterprises which cannot get supplies locally can usually tide over a scavce time by getting supplies from a distance. Times of scarcity and plenty succeed each other in Jamaica, and sometimes between the time any enterprise is started and the time it is ready to work, the particular product that is necessary cannot be got readily. For instance, a storm in July would have upset all our corn crop calcuaations: (as a matter of fact bappening in August it upset our own calculations for seed corn which requires to be dried long in the field.) Cattle are rather plentiful now—they were scarce a year ago—and they are plentiful not so much because of plenty of grass but because the consumption of meat owing to hard times has fallen off; people buy imported salt beef and salt pork to make soup. However, start a factory for making salt beef, and it would happen that it would not get enough stock. Take also the pig business. There was a great rush and cry to get pigs from March to August, because of the great abundance of bananas and plenty of other feeding. The storm of August came. Now those who have laid in stocks of pigs want to sell them as they cannot get cheap feeding. The calculations of a pork factory would have been entirely upset as they have been often upset before.

9. You are entirely right about butter. The common idea is that you have simply to take cream, put it in any kind of churn, and the coagulated stuff ensuing is—butter; but it has either a lardy flavour or no flavour at all. The art of making butter, is as difficult as the art of making German Rum, and while an old distiller can make, and tell good Rum by his nose without ever having been in a Laboratory, so mayan expert Butter maker tell good Butter who knows nothing about the theory of ripening, cream, etc. For making butter the cream has to be properly ripened at a certain temperature; a skilled nose and taste can tell when cream is at the proper stage. Churning has also to take place at a certain temperature.

EDITOR.

WAR GIFTS.

The following War Gifts have been contributed and despatched per the Jamaica Agricultural Society, for the fortnight ending October 25th, 1915.

I.—For General Distribution among Hospitals.

A.—Preserves.

Donor & Address.	Quantity.	Kind.
Grand Cayman (an Island Gift)	45 tins (450 lbs.)	Guava Jelly

B.—Citrus Fruit.

Donor & Address.	Quantity.	Kind.
Mrs. W. W. Wynne, Brokenhurst, Mandeville	11 boxes	Oranges
	2 ,,	Grapefruit
Mrs. S. Moxsy, Suttons, Chapelton	3 ,,	Grapefruit
Stony Hill Branch (per W. J. Brooks, Esq., Stony Hill)	30 ,,	Oranges
Mrs. H. E. Crum Ewing, Knockpatrick, Mandeville	3 ,,	,,
Sir John Pringle, K.C.M.G., Shaw Park	20 ,,	Grapefruit
Miss Ann Crossley, Kendal Lodge, Buff Bay	7 ,,	,,
	1 ,,	Limes
Capt. Alex. Bonitto, Battersea, Mandeville	17 ,,	Oranges
J. B. Caine, Esq., Devon (per Thos. Powell, Esq., Mile Gully)	9 ,,	,,
R. E. Lewis, Esq., Mandeville	10 ,,	,,
F. J. Delapenha, Esq., Williamsfield	20 ,,	,,
	20 ,,	Grapefruit
Mrs. Anna Maxwell, Friendship, Myersville	3 ,,	Limes

C.—Limejuice.

Donor & Address.	Quantity.	Kind.
Arthur George, Esq., Kingston	1 keg (about 10 gallons)	

II.—Addressed to Special Hospitals, Etc.

A.—Cigarettes.

Donor & Address.	Gift.	Destination.
The people of the Friendship Tabernacle, St. Ann, (per Mrs. Jas. Johnston, Brown's Town)	2,000 Cigarettes	St. Bartholomew's Hospital London.

B.—Clothing.

Donor & Address.	Gift.	Destination.
Miss I. Fernandez, 115 Duke St., Kingston	1 Case (containing 22 pieces children's clothing)	For Soldiers' Orphans.
Miss Ada Symons, Old Hope Rd., Cross Roads P.O.	44 pieces children's clothes	J. Navaux, Esq., Hon. Sec. Belgian Relief Funds, 32 Goswell Re., London, EC
Miss B. L. McLean, 120 Duke St., Kingston	22 pieces clothes	do
Misses M. Symonnett and B. & T. Franklin, 99 Church St., Kingston	20 Children's dresses	do
Ladies' Working Association, per Mrs. Pearce, Cross Roads, Kingston)	500 Garments	do
do	400 bags for Casualty Stations	Lady Smith-Dorrien, 21 Easton Terrace, London.
do	165 Garments and 20 Pillows	Red Cross Stores Dept., 83 Pall Mall, London.

C.—Citrus Fruit.

Mrs. R. Craig, Chapelton	5 boxes Grapefruit 4 ,, Oranges 1 ,, Limes	The Red Cross Hospital, Aberlour (on Spey), Scotland.
Mrs. W. W. Wynne, Mandeville	2 ,, Oranges	The Southern General Hospital.
do	2 ,, Oranges	The Town Hall, Southern General Hospital, Oxford
Capt. Alex. Bonitto, Battersea, Mandeville	3 ,, Oranges	Nurse Phyllis Cork, Carriden House Hospital,, Bo'ness, Scotland.

The following War Gifts were contributed and despatched to the United Kingdon, addressed to the Crown Agents, London, per the Jamaica Agricultural Society during the fortnight ending November 8th, 1915:—

I. For General Distribution Among Hospitals.—

Donor & Address.	Quantity.	Kind.
Mrs. W. W. Wynne,	12 boxes	Oranges
Mandeville	3 ,,	Grapefruit
Hon. J. R. Williams,	16 ,,	Oranges
Bethel Town	5 ,,	Grapefruit
Per H. A. Blake, Ewarton—		
Jno. McKoy	1 ,,	,,
Theophilus Martin	1 ,,	,,
Robert Thomas & Co.	5 ,,	,,
H. A. Blake	3 ,,	,,
do	5 ,,	Oranges
J. U. Blake	1 ,,	,,
Wm. Paterson	1 ,,	,,
Wm. A. Whoms	1 ,,	,,
F. J. Delapenha, Mandeville	40 ,,	Oranges & Grapefruit
H. A. Jacobs, Mandeville	12 ,,	Oranges
Sir John Pringle, Clonmel	10 ,,	,,
	10 ,,	Grapefruit
Mrs. H. E. Crum Ewing Mandeville	2 ,,	Oranges
Cecil R. Isaacs, Mandeville	35 ,,	,,
S. A. Hendriks, Porus	20 ,,	,,
J. A. Gallimore, Four Paths	10 ,,	Oranges & Grapefruit
J. B. Caine, Devon	12 ,,	Oranges

II. Miscellaneous Gifts for Special Hospitals, etc.—

Donor & Address.	Gift.	Destination.
Mrs. H. E. Crum Ewing, Mandeville	1 box Oranges	Barra House Hospital, Largs, Ayrshire, Scotland
do	2 boxes Oranges	Bevan Military Hospital, Sandgate, Kent.
Mrs. T. Alexander, Mandeville	1 case containing 6 tins (60lbs.) Guava Jelly	London, Scottish & Black Watch Regiments.
do	1 case containing about 126 Magazines	Any London Hospital.
Mandeville Ladies' Club	1 large case containing 8 Pillows	Q. M. N. G.
	24 Pillow Cases	Friary Court
	6 Twill Night Shirts	St. James' Palace.
	100 Soldiers' Bags	Lady Smith-Dorrien.
	6 Small Pillows	Lady French
	3 Parcels Books and Magazines	Any Hospital..

The following Gifts were put on board the troopship, which sailed on Monday, the 8th inst., for the use of the Jamaica and Bahama War Contingents per the Jamaica Agricultural Society:—

A. Citrus Fruit.—

Donor & Address.	Kind.	No. Boxes.	No. Barrels.
Hon. Geo. McGrath, Ewarton	Grapefruit	—	5
	Oranges	—	5
E. W. Muirhead, Mandeville	do	25	—
Spaldings Branch (per W. Hyde McCaulay, Spaldings)	do	—	8
Cecil R. Isaacs, Shooter's Hill	do	—	5
Sir John Pringle, Clonmel	Grapefruit	—	10
A. E. Wigan, Hartlands	do	3	—
	Oranges	6	—
R. E. Lewis, Mandeville	do	13	—
A. M. Lewis, Mandeville	do	3	5
J. M. Lewis, Yallahs	Limes	1	—
J. H. Smith, Bog Walk	Oranges	1	—
Per H. L. Mossman, Bog Walk—			
Jno. McPhail, Bog Walk	Grapefruit	10	—
A. J. Lecesne, Bog Walk	Citrus Fruit	—	2
Mrs. H. L. Mossman, Bog Walk	do	—	1
Per C. C. Glanville, Christiana,—			
Messrs. J. S. Foreman	Oranges	—	1
Feurtado	do	—	2
Evans	do	—	1
H. M. Bell, Richmond (for Corpl. Bell, No. 392.)	do	—	1
A. N. Speyer, Bog Walk, (for Lts. Rutty and Cox	do	1	—

B. Preserves.—

Donor & Address.	Quantity.	Kind.
Arthur George, Kingston	2 tins (20 lbs.)	Guava Jelly
Miss Cox, Half-way Tree (For Lt. G. S. Cox, No. 1 Platoon, J.W.C.)	1 tin (10lbs.)	Guava Jelly
Miss M. L. Gifford, Newmarket	2 tins (20 lbs.)	Guava Jelly
Mrs. A. B. Grey, Falmouth	2 tins (20 lbs.)	Guava Jelly
	2 tins (20 lbs.)	Orange Marmalade
The Misses Harding, Mandeville	2 tins (20 lbs.)	Guava Jelly
Miss Lewis, Mandeville	1 tin (10 lbs.)	Guava Jelly
Mrs. H. E. Crum Ewing, Mandeville	1 tin (10 bls.)	Guava Jelly
	1 tin (10 lbs.)	Mango Jelly
	1 tin (10 lbs.)	Pine Jam
Grand Cayman	2 tins (20 lbs.)	Guava Jelly
Guys' Hill Branch, per W. E. Watson, Guys' Hill	1 Large Jar	Guava Jelly
Mrs. Graham, Port Maria	3 bottles	Marmalade
	2 bottles	Orange in Syrup

C. Magazines.—

The following people gave bundles, parcels and cases of Magazines (total 17 packages):—

Sir J. Pringle, Clonmel; Jno. McPhail, Bog Walk; Mrs. H. L. Mossman; A. J. Lecesne, Bog Walk; Mandeville Ladies' Club (1 Case); A. A. Melhado, Old Harbour; *Roy Bridge, Kingston; W. Hyde McCauley, Spaldings; Mrs. M. deCordova, Liguanea* F. Max Morphy, Kingston; R. C. Hay, Kingston; Miss H. LeRey, Kingston; Mrs. J. Briscoe, Montpelier; Mrs. & Miss Jordon Andrews, Kingston; Miss Anna Crossley, Buff Bay; Chas. Chapman, Cedar Valley; J. M. Lewis, Yallahs; Mrs. Graham, Port Maria; H. Cocking, Kingston; The Secretary the Agricultural Society, Kingston; J. A. B. Clarke; W. G. Bagot-Grey.

D. Leaf Tobacco.—

1 box from Mrs. Anne Maxwell, Myersville.

BRANCH NOTES.

SOUTHFIELD (St. Elizabeth.)—The regular meeting was held on September 17, 1915. The Rev. E. P. Williams presided. The Rev. E. P. Williams was elected President in place of Rev. H. W. Cope. In accepting the post, he promised to do all he could in the welfare of agriculture generally. The Instructor addressed the meeting on the destruction caused by (a) Caterpillars and (b) swine fever. In a clear speech he gave valuable hints as to the prevention of the ravages of caterpillars. We can aid their natural enemies by hand picking. Swine fever may be prevented but not cured. Hints were given to its prevention. The meeting then adjourned.

J. J. MILLER, Secretary.

MIZPAH (Manchester.)—A meeting was held on the 17th September. The Rev. F. Weiss occupied the Chair. Several members, the Instructor and E. D. Kinkead, Esq., (visitor) were present. Matters dealt with: (a) Reports of the Authorized Persons. (b) Letter from Mr. Barclay *re* appointment of Messrs. A. Gale, G. Reid, D. Stewart and Sam. Collins as Authorized Persons was read. (c) Instructor's Address—"Preparation of Produce for Market." He urged the members against improper curing and handling of sugar, banana, corn and Irish potatoes, dealt with unscrupulous buyers necessity for improving crops. A. Walder, Esq., J.P., emphasized the points raised by Instructor. Votes of thanks were accorded the Instructor.

D. J. LEWIS, Secretary.

ORACABESSA (St. Mary.)—The monthly regular meeting was held in the Oracabessa Schoolroom on September 21. There were present the President, Vice-Presidents, Secretaries and nine members. The President asked Mr. Webster to read his paper on Ticks which he had prepared. Mr. Webster dealt very ably with the subject, shewing what has been done from time to time to eliminate this pest. He pointed out the fact that it was really after the importation of Texas mules that Ticks became so prevalent. Then it was that the matter was taken well in hand, which finally resulted in Prof. Newstead's and Mr. Cousin's experiment with the various mixtures used. These men reported that the method of application was bad also the composition of the fluids used. Some of these fluids were: Sheep wash, Jeyes fluid, Kerosene Oil, Tobacco and Kerosene emulsion. He had used many of these himself, but after five years' experience had proved Paranaph to be the best, even better than Cooper's Dip for the following reasons:—Paranaph is sticky and remains on the animal for a much longer time than Cooper's Dip. Cooper's Dip is dangerous if not properly mixed, and if the animal is heated Cooper's Dip must not be used at all. After the subject was much discussed, the President suggested the following resolution to be sent in to the Government:—"Be it resolved that the destruction of Ticks by spraying or dipping be made compulsory." Mr. N. G. Silvera thought that the number of stock reared in this district was not sufficient to justify our taking up the subject. The President suggested that neighbouring societies be asked to join in the movement, and this was thought advisable. It was decided to hold a debate on the resolution on Tuesday, the 5th of October. The following reports were received from Authorized Persons:—1. Josiah Edwards who now resides in Portland made an arrest and got conviction. 2. Stephen Powell made two arrests, one man was convicted and for some reason or the other, the other man was not tried. He also spent a day investigating a charge of larceny, but having made no arrest, he was not paid. He was recommended to bring a letter proving that he had done such work, so that the Secretary might fill up the necessary form, entitling him to a day's pay. 3. Michael Sewell reported one case of obscene language. The man was fined and he received pay.

J. H. WYNTER, Secretary.

BUNKER'S HILL (Trelawny.)—The last regular monthly meeting was held on the 23rd September, 1915. There were present: Mr. C. G. F. Robertson, President, M. Rennie, Esq., Asst. Instructor and 13 members. A prize list of the Local Show held at Claremont was read by the Secretary, and with a few exceptions was adopted as being a suitable prize list for the members to be held in March next for the benefit of members, and encouragement of outsiders to become members of the Branch. After a full discussion on the various places for show, Mr. Robertson, President, promised to make himself responsible for the printing of prize lists, and placards. This kind offer was highly appreciated by all the members. The Instructor then gave valuable hints on the pruning of cocoa, and the planting and care of both cocoa and coffee. He then promised to visit the holdings of members, and in all spent two days in the cultivations of the different members: giving demonstrations in the pruning of cocoa. Another innovation which was highly appreciated was the offer of the

Instructor to spray all horses and other animals brought to him with Cooper's Dip. The next monning after the meeting quite a number of horses were brought to be sprayed. The Instructor also gave valuable hints on the use of the Syringe. He promised to make his visits weekly for the spraying of the animals with Cooper's Dip. It would appear as if in the immediate districts around, the tick is more rampant than anywhere else; and this offer to help to eradicate them is greatly appreciated by all in the district.

W. A. WRIGHT. Secretary.

CHRISTIANA (Manchester.)—The regular quarterly meeting was held in the Court House on Friday, October 1. Present: R. J. Miller, Esq., Chairman, Mr. Thos. Powell, Instructor, 16 other members including the Secretary. Matter of "Hog Sick" was brought up, and it was shown that a treatment of Jeyes and water applied externally and a dose of Castor oil will in many cases prove effective. A market for our crops. It was brought out that there were larger quantities of corn and potatoes for which no sale could be obtained. It was the opinion of the meeting that the Agricultural Society should through its Instructors endeavour to gauge the crop and induce local merchants to handle native grown products instead of the imported stuff. The Instructor showed that local markets would be found for these articles, but not until the people paid more attention to the harvesting and curing of their crops. He gave instances of unfit potatoes and immature corn being sold, and that stood in the way of sales. It would be great boon if a central factory could be established in or near Christiana, to handle the large crop of sugar which these parts are capable of producing. The feeling of the meeting was expressed in the following resolution: Resolved: "That this Branch Society, conscious of the unsatisfactory condition of our local market, begs to assure the Parent Society of its sympathy and support in establishing means of preparing and absorbing our produce in supplying our Island needs." The Delegate to the Half-Yearly Meeting tendered his report and received a hearty vote of thanks. Four Authorized Persons gave their reports. Those of Christiana reported "all correct." Rufus Brown of Lowe River dealt with four cases for which he was paid without any trouble. Mr. Robt. Butler of Coleyville tendered his resignation on the ground of ill health. He delivered up his badge and pair of handcuffs. Date of next meeting, Friday, December 17th, at 2 p.m. Meeting adjourned.

W. M. O'MEALLY, Secretary.

SPANISH TOWN (St. Catherine.)—A regular meeting was held at the rooms of the Parochial Board on Wednesday, the 6th October, at 7.30 p.m., there being present: Messrs. W. Gentle, presiding; Treasurer, Secretary and 4 other members. The Secretary reported that the regular meeting in August had fallen through. The following communications were read and dealt with as mentioned: Letter from General Secretary noting the election of Mrs. Geo. Thompson as a member, and that the "Jackson" and "Burbank" were the only varieties of seed potatoes (Irish) imported by his department, the former of which is a rounded deep-eyed potato, rather yellow fleshed and very hardy, and the latter smooth and white fleshed, but hardly so robust as the "Jackson." The Secretary was desired to enquire the price per barrel for the potatoes. Letter from the Clerk to the Director of Agriculture expressing regret that through oversight a copy of the last issue of the Bulletin of his Department was not supplied the Branch before. Noted. Circular from the Mahoe Hill Branch Society forwarded with two resolutions advocating (a) the establishment of a Shipping Department—as an adjunct to the Jamaica Agricu tural Society—which would provide for an Emporium through which produce intended for exportation could be properly cured and handled, and (b) the fixing by the Agricultural Society of uniform prices to be paid throughout the colony for the various products. It was decided after discussion to defer dealing with the matter finally until the next meeting. Dr. J. Huntley Peck (D.M.O.) Spanish Town, and Mr. C. Hy. Muschett, were elected members unanimously. The Secretary reported that since the last meeting Mr. T. G. M. Stewart, an "Authorized Person," had effected 12 arrests for unlawful possession of agricultural products, and that 10 of the parties had been convicted. The members expressed themselves as pleased with the work of Mr. Stewart.

EVERARD LOPEZ, Hon. Secretary.

CAMBRIDGE-WOODFORD.—The monthly meeting was held on the 7th October, 1915. There were present: R. Nelson, Esq., who presided, the Secretary and seven other members. The special fund for defraying the cost of the Spray pump had some attention. The pump was presented to and inspected by the members The Secretary presented a statement of the funds of the Society for half-year ending 30th September, 1915. He then urged on the members the necessity of their inviting others to join so as to make up for the falling off at the beginning of current year. A vote of thanks was accorded him for his interest in the affairs of the Society. He thanked the meeting for the expression of its good feelings. He informed the meeting that he had just received, for distribution, the seedlings ordered by Mr. Hanson from Hope Gardens.

R. A. CLARE, Secretary.

LOWER ST. DAVID'S (St. Thomas.)—The last regular meeting was held in the usual place on the 2nd October. There were present, Rev. J. A. Edwards, in the Chair, eighteen members, some visitors, and the Secretary. A letter from the Rev. Rev. A. Cole *re* the use of the Church Hall by the Branch, and another from the General Secretary with regard to Mr. Chas. Barrant, Authorized Person, were read. A committee was appointed to deal with Rev. Cole's letter, and the Secretary was directed to reply to Mr. Barclay *re* Mr. C. Barrant. A discussion arose as regards the sum which the Branch intends to raise in aid of the Jamaica Contingent Fund. At the last meeting it was decided that the amount be raised by voluntary subscriptions from individual members. The Secretary suggested that the amount thus raised be augmented by a sum voted from the general fund of the Branch. It was, however decided that the subscriptions be first gathered in before taking further action. Mr. C. R. Johnson moved that the honorarium to Rev. Cole in appreciation of the use of the Church Hall, allowed by him, be suspended until the pressing matter of the amount for the Contingent Fund be settled. This was unanimously agreed to. After an unusually warm discussion with regard to Authorized Persons, and their duties, as arising out of the Barrant-Johnson case, the meeting came to a close with the singing of the National Anthem. T. E. CLARK, Secretary.

RICHMOND (St. Mary.)—The monthly meeting was held on Tuesday, the 5th October. Eleven members were present, besides the Instructor. The Secretary reminded the Instructor about the getting of cocoa plants at Castleton .After a few remarks by the Instructor and the President, it was agreed that Mr. T. Davis should go with his cart on Friday, the 15th, to get the plants. Authorized Persons were called upon to give their quarterly reports. Three of the men stated that no arrests had been made. Mr. T. Davis next asked the Instructor's opinion of the cultivation of cane in this locality, so that sugar could be made as an exportable article. The Instructor said, that he was of opinion that it would not be profitable, since there are no estates in this parish where the sugar or cane could be sold, yet the members could plant cane, and jointly purchase a good mill. The question of cane plants was next dealt with. The Instructor informed the members that very good plants can be obtained at Hope. All the members asked the Instructor to get the plants. Mr. W. Thomas next spoke of scarcity of eggs, and also asked the Instructor the best means of keeping eggs for a long time. This also was explained. The corn cob was also discussed, and thought to be a good feeding for horses and mules as it does not cause the animals to be sick after eating it. Lastly, the Instructor addressed the meeting on the meal made from the corn grown here. He stated that the home made meal is cheaper, and if it is properly ground equals or surpasses the imported meal. He also said that a mill can be got that would make the finest meal from one pound upwards. He also in conclusion spoke of the sickness among fowls. Some of the members spoke of the remedy applied when they have their fowls sick. The next meeting was fixed for the 1st Wednesday in November, 1915. CHARLES GREGG, Secretary.

CRAIGHEAD (Manchester.)—The usual monthly meeting was held in the Schoolroom at 7 p.m. on the 5th October. A very large percentage of the members answered the roll-call. Arising out of the minutes of the former meeting, the Chairman, after some preliminary remarks, moved the following resolution: "That whereas the change in the weather have become so uncertain and at the same time so disastrous to cultivation, especially the banana, which has hitherto done so much good for the country: "Be it resolved: That the Government be asked to encourage the cultivation of the corn and the sugar cane which are less susceptible to the ill effects of the frequent hurricanes by which our land is visited." Mr. A. Weston said he felt that though at present there is no market for these articles, circumstances have brought them into importance and he was sure the way would soon be opened by which these products will become a source of prosperity to the country. Mr. R. E. Samuells and others spoke in support of the resolution which was unanimously carried. The next resolution was then agreed to: "That whereas this meeting is thoroughly convinced that the Government is much concerned about the prosperity of the peasantry: "Be it resolved, that the Government be asked to adopt some means by which the small settlers may be able to dispose of their sugar at some small profit." Mr. Watson said he was quite sure that of late sugar is being sold at a loss. In these parts there is a tendency to plant canes, the lands being admirably suitable for its cultivation, but there are not many who have their own machinery for the making of the sugar, and those who have not got, cannot help facing a loss. This state of things must act as a check on the energies of the cultivator. Mr. Freckleton, as a cultivator of canes, could speak with some knowledge of the subject. The need of a market was keenly felt and if the Government could

see its way to help in this respect he was sure the country would be much better off, and there would be less "complaining in our streets." Mr. Wm. Smith thought that while in days gone by an empty bottle bore no practical value, in the present time it is eagerly sought for and collected, and money is earned by it because there is a market for it. In the same way if a market be provided for the sugar the effect on the country would be agreeably surprising. It was moved and agreed to: "Now that the road through the district is taken over by the P.W.D. and will shortly be opened up: Be it resolved that the Government be asked to give the option of working to the residents in the district instead of excluding them for the benefit of strangers." This was passed unanimously, and the meeting was brought to a close.

E. CAMPBELL, Secretary.

WARSOP (Trelawny.)—This branch held its monthly meeting on the evening of the 6th October. Present: E. Arnett, Esq., Instructor, Mr. Rennie, his assistant, the Secretary and ten other members. In the absence of the Chairman, Mr. C. Wright was asked to preside. After the minutes were read and confirmed, two letters from Mr. Barclay were read. The Secretary explained, that owing to much rain during the two previous months no meeting was held. At this stage, Mr. Rennie was given the opportunity of addressing the meeting. This he did in a very able manner choosing for his topic the rearing of cows. Mr. Arnett then spoke on the cultivation of the sugar-cane, and in connection with this read a letter from the Hon. H. H. Cousins, bearing on the subject. Mr. R. Johnston became a new member and Mr. A. Dixon paid in his subscription. Meeting was brought to a close by the singing of the National Anthem.

U. K. WALTERS, Secretary.

ALBANY (St. Mary.)—The Society met on the 6th October, 1915, at Friendship. There were fourteen members and the Agricultural Instructor. The Rev. W. D. *Henderson occupied the Chair in the absence of the Chairman, who is off the Island* at present. Correspondence was dealt with and business discussed:—(1) Potato slips to be got from Spanish Town. (2) Cart to be sent to Castleton Gardens for cocoa plants on Friday, 15th inst. (3) Transfer of care of the boar to another person as the persent keeper intimated his inability to retain same. (4) That complaint of Martin's members be considered, and Mr. L. S. Clarke arranged for a demonstration by the Instructor at Martins or Friendship, to come off the 19th inst. (5) Show Committee on financial business. (6) Treasurer's report: To date receipt, £5 14s. 5d.; expenses 4s.; balance, £5 10s. 5d. to account. The Instructor next addressed the meeting and among other things gave the hint that the Society should keep in mind the value of a small cooperative cocoa factory with a view to getting one if possible. Two Authorized Persons presented reports. One scored conviction and a fine on his capture. A few topics which might prove profitable for discussion at the meeting were then suggested by the Chairman. Mr. C. A. Hinds was appointed to bring before the next meeting any matter of practical interest to the members that he may select from the JOURNAL for the month. Next meeting fixed for Tuesday, 2nd November, 1915.

C. L. DRYDEN, Secretary.

MARLBOROUGH (St. Mary.)—The monthly meeting was held on Thursday, October 14th, 1915, at 5.15 p.m. Present: The President, 1st. Vice-President, the Secretary and 10 other members. Mr. Z. French moved that a set of tools for pruning cocoa be purchased by the Branch for the use of members. It was finally agreed that the Secretary correspond with Mr. W. Cradwick *re* cost of same. Mr. F. F. Ferguson moved that a corn-mill be purchased by the Branch for the use of the district at large. The motion was heartily supported, but as the funds of the Branch would not permit such an expenditure at present, the matter had to be deferred until the next financial year. Read letter from the Secretary of the Parent Society *re* negligence shown on the part of Messrs. Scarlett and Brissett in allowing their JOURNALS for both July and August to be returned to the Society's Office. Mr. Scarlett who was present expressed his regret; but pointed out that he made several applications at the Post Office, but without success. After some little talk with Mr. Scarlett, and on his promising to be more careful in the future, the Secretary was instructed to apply to the Jamaica Agricultural Society for his reinstatement. Reports from two Authorized Persons were received. Mr. Barber reported everything correct in his district, while Mr. Walker reported the absconding of one Solomon Stephen while being taken to certain parties from whom he alleged he got some yams, for which he was held on suspicion. Report of Treasurer was read and adopted. The Secretary announced the annual meeting to be held in November, when officers to serve for the ensuing year would be elected.

R. SAML. FINLAYSON, Secretary.